THIS WEEK'S NATIONAL PETROLEUM NEWS

The Recognized Authority on News, Markets and Technical Developments in the Oil Industry

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COMING MEETINGS

General Exposition

Texas Centennial Exposition, Dallas and Ft. Worth, June 6 to Nov. 29.

Oil Meetings

Association of Gas Appliance and Equipment Manufacturers, first annual convention and exhibit during 18th annual convention of American Gas Association, Atlantic City Auditorium, Atlantic City, N. J., Oct. 25 to 30.

Oil Trades Assn. of New York, annual banquet, Waldorf Astoria Hotel, New York, Oct. 27.

National Oil Marketers Association, annual convention, Stevens Hotel, Chicago, Ill., Oct. 27 to 29.

Indiana Independent Petroleum Association, fall convention, Hotel Severin, Indianapolis, Ind., Nov. 4 and 5.

Mid-Continent Oil & Gas Association, (Louisiana-Arkansas Division) annual membership meeting, Shreveport, La., Nov. 5.

American Association Petroleum Geologists. Pacific Section, Biltmore hotel, Los Angeles, Calif., Nov. 5 and 6.

American Institute of Mining Metallurgical, Western Meeting, Mexico City, Mexico, Nov. 7 to 16.

American Petroleum Institute, 17th annual meeting, Stevens Hotel, Chicago, Nov. 9 to 12.

National Automobile Show, Grand Central Palace, New York, N. Y., Nov. 11 to 18.

Society of Automotive Engineers, annual dinner, New York City, Nov. 12.

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He Takes One Third for Taxes

Looking at it another way, all the money taken in from servicing one of the three cars goes to government for taxes.

NATIONAL PETROLEUM NEWS

VOLUME 28 NUMBER 43

Station Sales Up 28% in 1935

Census of Retailing Shows

By JOHN W. THOMPSON
N. P. N. Staff Writer

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THAT the state of the American motorist's pocketbook had improved considerably in 1935, over 1933, is shown in a comparison of filling station figures for those years just released by the U. S. Bureau of the Census in a preliminary report on retail distribution.

While there were 15 per cent more filling stations in 1935 than in 1933, the percentage gain in filling station sales was 28 per cent.

This relatively large increase in sales reflects the general business improvement and can be accounted for in no small measure by the increase in motor vehicle registration, which in 1935 was 10 per cent more than in 1933. New car registrations in 1935 practically doubled the 1933 figure.

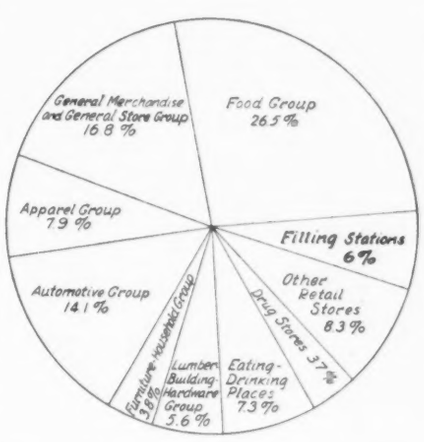
The census report shows there were 196,649 filling stations in the United States in 1935, with total sales amounting to $1,961,780,000, as against 170,404 stations with a sales volume of $1,531,724,000 in 1933.

The sales increase of 28 per cent for filling stations compares favorably with the 31 per cent average increase in sales for all retail outlets and is much higher than in some lines.

The 15 per cent increase in the number of filling stations from 1933 to 1935 compares with a percentage increase in the number of all retail outlets of only about 8 per cent. Authorities in the oil industry give various reasons for this greater relative growth in the number of stations.

One authority asserted the increase in number of stations was a depression phenomena largely, being due to the initiative of men out of work in other lines who did not want to wait for a WPA job or to get on relief. Recognizing that the consumption of gasoline was holding near its high levels, men of this type saw an opportunity to make a living at least in selling gasoline and oil.

Other reasons for the increase in the number of stations are given as the extensive building of new roads, surfacing of previously unimproved roads, the rerouting of traffic in cities, which gave opportunity for the opening of new stations, and even made them necessary to a considerable extent.



This chart shows how the consumer spent his dollar in retail purchases in 1935 based on figures from U. S. Department of Commerce Census of Retail Distribution for 1935

IN COMPARING the details of the 1935 census report with the 1933 figures, at least as far as filling stations are concerned, readers should keep in mind that the 1933 figures were criticized as not being complete, in that they did not compare with other data in some states on numbers of stations and so on. A higher degree of accuracy is claimed for the 1935 report.

In the census report a retail outlet is classified as a filling station if the sale of gasoline and oil constitutes more than half of the total annual sales of the outlet. This covers a wide range of outlets, from the super service stations in the larger cities, to the country roadside station, if the largest item of sale is reported as gasoline and oil.

It should be remembered that

this census report on filling stations by no means includes all of the retail outlets in the country handling oil company products. General stores, supply houses, grocery stores, garages, car dealers, and other assorted outlets sell gasoline and oil; but they are not classified as filling stations, because petroleum products do not amount to half of their total sales.

Some idea of the extent of the gasoline business outside the filling stations as classified in the census report is shown by the fact that in 1935 the total sale of taxable motor fuel, based on an average price in 50 cities, amounted to over 3 billion dollars, or almost twice as much as the total sales of all items at filling stations as reported in the retail summary. A good share of this difference is tank wagon sales direct to industrial firms, consumers and so on.

A west coast and an east coast state ranked highest in number of stations in 1935. California had 12,729, an increase of 11.5 per cent over 1933, and New York had 12,549, with an increase of 26.7 per cent over 1933.

However, in 1935, New York led the nation in filling station sales volume with $155,857,000, showing an increase of 36 per cent over 1933, while California was second with $154,532,000, an increase over 1933 of 22 per cent in sales volume.

Large increases in filling station sales are reported for Idaho, Montana, North Dakota, and Wyoming. In none of these states was the sales gain in 1935 less than 75 per cent over 1933, with such an excellent sales improvement in these rural states, it would seem to indicate that the farmer in 1935 again had money to get his automobile and truck out of the barn. The gains here are probably due in part also to the relatively large increase in improved roads in these states.

With reference to number of stations, Texas was third, Ohio fourth, and Pennsylvania fifth. These were the only states having more than 10,000 filling stations, as reported by the census bureau. From the standpoint of sales volume, however, the states did not follow the same

Individualistic Design

(See Cover Photo)

Developments in the use of porcelain enameled iron as a station building material now provide for originality in the style even of single stations, as in the building of the Parfet Sales and Service company, at Port Huron, Mich., illustrated on the cover of this issue. Principal color is buff, with trim in light green; base, likewise porcelain enamel, is maroon. Attachment strips are of stainless steel. Photo courtesy of Ferro-Enamel Corp., Cleveland.

Retail Census Data on Filling Stations—1935 and 1933

(Figures from U. S. Bureau of the Census)

	Filling Station Sales (add 000)		Percentage Gain (sales) 1933 to 1935	Number of Filling Stations		Percentage Gain 1933 to 1935	Filling Stations Percentage of Total Retail Sales		Active Proprietors and Firm Members 1935	Employees (full time and part time) Avg. for year 1935	Pay Roll* (add 000)	
	1935	1933		1935	1933		1935	1933			Total 1935	Total 1933
Alabama	$20,678	$15,442	34	3,003	2,358	27.4	6.2●	7.0	2,801	2,427	$1,435	$1,557
Arizona	8,570	6,288	36	829	809	2.5	7.3	8.3	774	840	764	563
Arkansas	18,108	13,850	31	2,600	2,143	21.3	7.5	7.7	2,563	1,998	1,350	1,246
California	154,532	126,714	22	12,729	11,417	11.5	6.7	7.5	11,249	15,527	16,702	12,767
Colorado	23,554	15,590	51	2,266	1,838	23.3	8.0	6.7	2,147	2,062	1,685	1,328
Connecticut	28,274	23,229	22	2,385	2,095	13.8	5.1	5.4	1,993	2,898	2,860	2,340
Delaware	4,686	5,074	—8	520	406	28.6	6.4	8.8	443	450	424	632
Florida	35,398	27,924	27	4,250	3,674	15.7	8.4	9.7	4,038	4,063	3,008	2,271
Georgia	34,558	28,787	20	4,507	4,033	11.8	7.1	8.1	4,166	4,666	2,731	2,622
Idaho	10,051	5,629	79	955	719	32.8	7.2	6.4	947	686	545	273
Illinois	103,095	93,712	10	9,311	8,635	7.8	5.0	5.4	8,440	10,975	10,432	9,906
Indiana	56,201	44,969	25	6,045	5,436	11.2	7.2	7.9	5,686	5,297	4,546	4,587
Iowa	56,802	45,085	26	6,062	5,142	17.9	8.8	9.4	5,866	5,345	3,803	4,122
Kansas	40,725	30,485	36	4,956	4,189	18.3	9.1	9.3	4,451	4,740	3,622	3,383
Kentucky	22,418	17,351	29	2,709	2,148	26.1	5.8	5.7	2,391	2,476	1,957	1,670
Louisiana	20,128	15,304	32	2,377	2,095	13.5	5.9	5.8	2,208	2,889	2,064	1,665
Maine	14,419	9,403	53	1,506	1,099	37.0	6.2●	5.1	1,370	1,164	1,042	752
Maryland	20,563	18,921	9	1,669	1,624	2.8	4.6	4.9	1,438	2,353	2,264	2,270
Massachusetts	65,325	53,372	22	4,808	4,376	9.9	4.4	4.5	3,822	6,775	6,752	5,795
Michigan	96,496	75,363	28	8,601	7,577	13.5	7.0	8.0	8,078	8,915	8,071	7,169
Minnesota	57,783	44,024	31	5,436	4,230	28.5	7.1	7.5	4,888	5,182	4,431	4,420
Mississippi	13,766	11,572	19	1,961	1,743	12.5	7.8	8.2	1,893	2,039	1,232	1,073
Missouri	57,288	47,841	20	7,356	6,305	16.7	6.2	6.3	6,866	6,652	5,260	5,501
Montana	12,544	6,599	90	921	596	54.5	6.6●	5.9	776	968	899	465
Nebraska	34,263	27,221	26	2,913	2,639	10.4	9.5	9.9	2,756	3,483	2,538	2,444
Nevada	2,213	1,613	37	194	153	26.8	5.2●	5.6	166	193	196	131
New Hampshire	8,454	5,439	55	967	668	44.8	5.6	4.9	897	753	691	415
New Jersey	60,316	48,340	25	5,249	4,591	14.3	5.0	4.7	4,522	6,276	6,368	5,757
New Mexico	6,915	4,109	68	826	728	13.4	7.9	7.6	815	726	574	343
New York	155,857	114,925	36	12,549	9,908	26.7	3.4	3.1	10,876	14,752	15,759	11,269
North Carolina	43,371	35,657	22	6,491	5,558	16.8	9.4	9.8	6,120	4,963	3,315	2,819
North Dakota	14,248	7,775	83	1,250	807	55.0	9.5	7.2	1,116	1,088	984	586
Ohio	142,682	107,298	33	12,013	10,464	14.8	7.3	7.4	11,048	11,419	10,396	11,408
Oklahoma	38,276	30,718	25	5,342	5,135	4.0	8.9	9.0	5,217	4,514	3,209	3,013
Oregon	21,841	15,844	38	2,281	1,875	21.7	6.5	7.0	2,175	1,763	1,653	1,207
Pennsylvania	109,824	86,644	27	11,602	10,051	15.4	4.4	4.6	10,255	12,119	10,900	9,206
Rhode Island	9,609	8,344	15	804	726	10.7	4.4	5.0	702	1,083	1,040	965
South Carolina	20,311	14,815	37	2,732	2,519	8.5	8.3●	8.2	2,459	2,698	1,679	1,237
South Dakota	15,445	10,741	44	1,568	1,194	31.3	10.6	10.1	1,437	1,287	1,014	780
Tennessee	31,425	21,937	43	3,157	2,564	23.1	6.5	6.7	2,960	3,608	2,506	1,954
Texas	93,911	71,739	31	12,217	11,211	8.9	7.3	7.4	12,001	12,552	8,653	7,373
Utah	9,736	7,251	34	887	767	15.6	7.4	7.6	867	947	695	582
Vermont	4,924	3,597	37	632	479	31.9	5.0	4.6	608	456	362	289
Virginia	31,513	25,002	26	3,873	3,764	2.9	6.7	7.0	3,479	3,631	2,815	2,370
Washington	38,251	24,877	54	3,626	2,887	25.6	7.3●	6.8	3,407	2,840	2,834	2,084
West Virginia	19,115	14,615	31	2,179	2,028	7.4	5.8	6.0	1,934	1,909	1,576	1,450
Wisconsin	52,147	42,026	24	4,619	4,256	8.5	6.0	6.8	4,010	4,824	4,260	3,818
Wyoming	7,018	3,764	86	495	364	36.0	8.6	6.7	491	493	459	298
Dist. of Col	14,153	12,318	15	421	381	10.5	4.3	5.1	199	1,847	2,054	1,763
TOTALS	1,961,780	1,529,137	28.3	196,649	170,404	15.4	6.0	6.1	179,811	201,611	174,409	151,938

*Includes no compensation for proprietors and firm members of unincorporated businesses.
●Computed. Not given in census report.

order, with Texas dropping to seventh place. Ohio was third highest in volume of sales at filling stations, Pennsylvania was fourth, Illinois fifth, and Michigan stood sixth.

The lowest sales volume, $2,213,000, was done at Nevada filling stations. In 1935 there were only 194 filling stations reported in this state. However, Nevada filling stations come close to the national average of percentage of filling station sales to all retail sales, with 5.2 per cent.

The highest percentage of filling station sales compared to total retail sales occurred in South Dakota, where 10.6 per cent of all retail sales in 1935 were made at filling stations. This state held the same record in 1933. The lowest percentage for 1935 was in New York State, with 3.4 per cent of total retail sales going to filling stations.

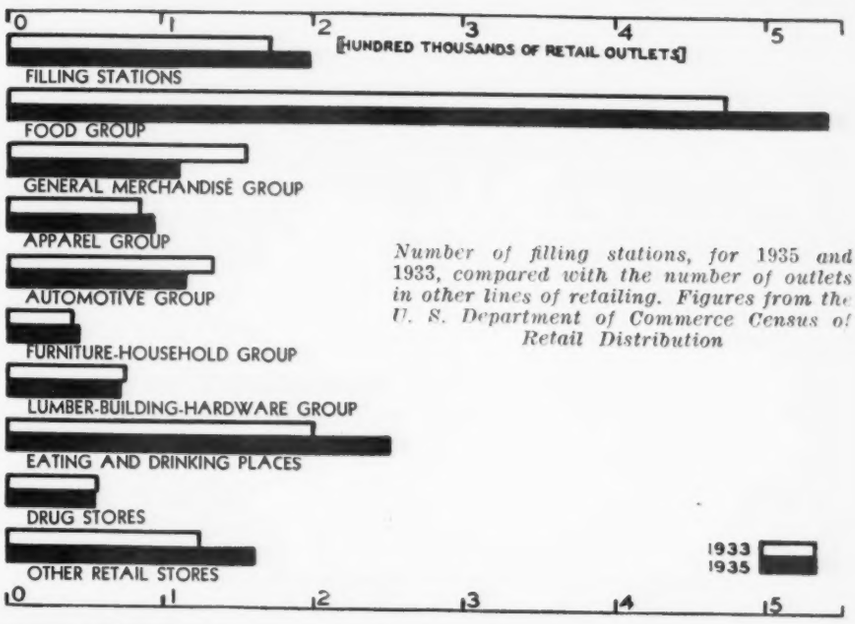
With total sales for all retail outlets in 1935 amounting to $32,790,267,000, the census reveals that filling stations accounted for 6 per cent of the total, a slight drop from the 6.12 per cent of 1933. Food stores are shown to account for the largest single part of the total 1935 retail sales volume, with 26.5 per cent. This food group also experienced a slight drop from 27.1 per cent of all retail sales in 1933.

A few calculations point out some interesting comparisons. The average total sales per filling station in 1935 were $10,000, while the average sales of all retail outlets were $20,000 per outlet. In 1933 the average sales per filling station the country over were slightly under $9000.

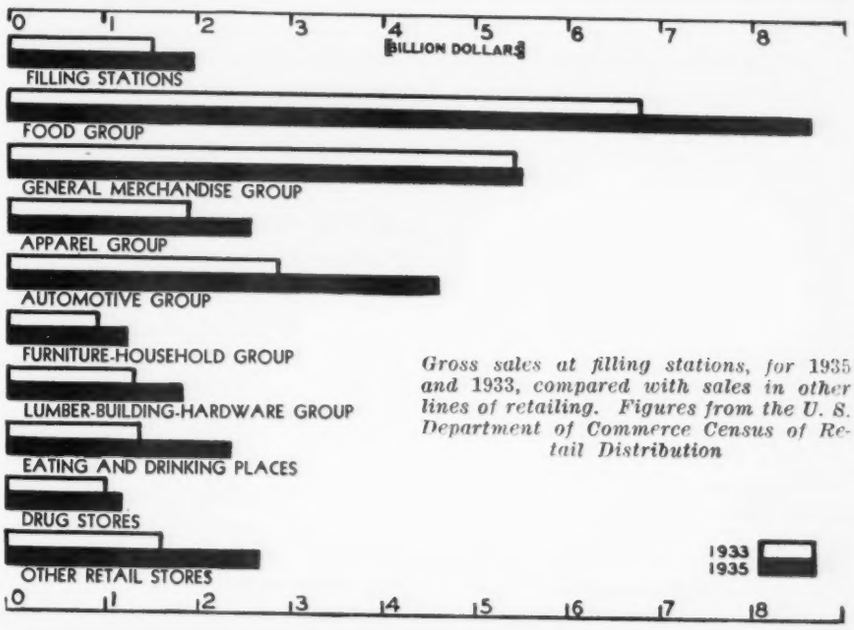
Computations show that last year the average number of active proprietors and employes per filling station averaged slightly less than 2, while the average per outlet for all groups of retail business was 3.3.

With filling stations selling 6 per cent of the public's retail purchases in 1935, the oil industry employed 7 per cent of the total help required for all lines of retailing. In 1933, filling stations employed 6.5 per cent of the total retail employes, including proprietors and partners in the business.

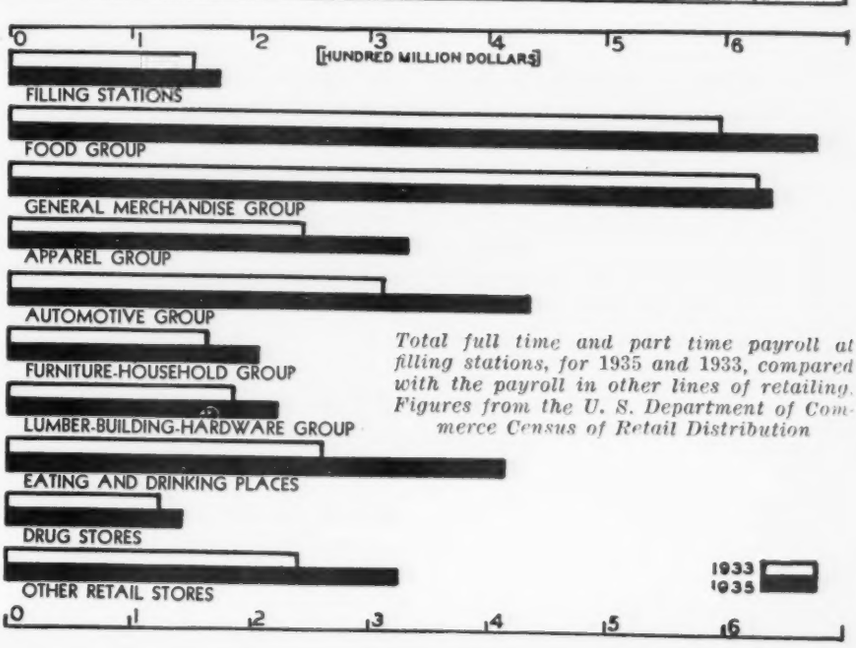
It is shown in the report that for every dollar taken in on a



Number of filling stations, for 1935 and 1933, compared with the number of outlets in other lines of retailing. Figures from the U. S. Department of Commerce Census of Retail Distribution



Gross sales at filling stations, for 1935 and 1933, compared with sales in other lines of retailing. Figures from the U. S. Department of Commerce Census of Retail Distribution



Total full time and part time payroll at filling stations, for 1935 and 1933, compared with the payroll in other lines of retailing. Figures from the U. S. Department of Commerce Census of Retail Distribution

Comparison of Filling Stations With Other Retail Outlets in U. S.—1935

(Figures from U. S. Bureau of the Census)

	Number of Stores	Sales Amount (add 000)	Sales Per-Cent of Total	Active Proprietors and Firm Members	Employees (full time and part time) Avg. for year	Pay Roll* (add 000) Total	Full-time	Part-time
Filling Stations	196,649	$1,961,780	6.0	179,811	201,611	$174,409	$163,046	$11,363
Food Group	542,845	8,643,397	26.5	498,286	755,324	675,184	627,773	47,411
General Stores (with food) and General Merchandise Group	111,297	5,522,766	16.8	98,864	780,911	636,643	590,134	46,509
Apparel Group	95,147	2,598,250	7.9	73,273	320,297	331,869	307,638	24,231
Automotive Group	116,553	4,626,564	14.1	113,149	376,774	436,305	423,486	12,819
Furniture - Household Group	45,001	1,260,464	3.8	35,828	169,127	205,980	195,735	10,245
Lumber-Building-Hardware Group	72,784	1,847,453	5.6	60,050	192,191	220,729	205,606	15,123
Eating - Drinking Places	251,084	2,385,495	7.3	257,269	642,682	416,445	386,056	30,389
Drug Stores	56,519	1,226,491	3.7	48,241	158,379	144,084	134,985	9,099
Other Retail Stores	161,202	2,717,607	8.3	145,320	302,631	326,750	200,262	26,488
TOTALS	1,649,081	$32,790,267	100.0	1,510,094	3,899,927	$3,568,398	$3,334,721	$233,677

*Includes no compensation for proprietors and firm members of unincorporated businesses.

sale at a filling station in 1935, the payroll took 8.9 cents, which is slightly less than the similar figure of 10.9 cents per dollar sales volume for all retail outlets. Each active proprietor or employe at a filling station made average sales of about $5100 last year, while the total average sales per employe or proprietor, based on all retail outlets, came to approximately $6100.

According to the census report, there were 179,811 "active proprietors and firm members" and 201,611 full and part-time employes at filling stations in 1935. These two groups combined show an increase over 1933 of 16.2 per cent, reflecting to a considerable extent the oil companies' efforts to increase employment in the marketing branch.

In 1935 the total filling station payroll amounted to $174,409,000, as against $151,938,000 in 1933, an increase in 1935 of 15 per cent.

In 1935, the report shows that the average earnings of full-time and part time employees in all retail outlets was $920, and for filling station employees $870. In 1933, while the average wage for all retail employees was $850, the wage figure for filling station employees was $890, slightly above the general average.

Further indication that wages of filling station employees have been consistently in line with the average wage for employees of all retail outlets is shown in a comparison of full-time and part-time payrolls in 1933.

During this year, the average earnings of all retail employees who worked full-time was $986, while the average wage for full-time filling station employees was $990. Part-time employees at all retail outlets received an average pay in 1933 of $340, and part-time filling station employees received average earnings of $350.

An encouraging sign to the oil industry is shown in the comparison of sales volume of the automotive group in 1935 and 1933. This group, the principal part of which is new car dealers, showed a 60 per cent increase in sales volume in 1935 over 1933, with the 1935 sales figure reaching $4,626,564,000. This improvement came despite a reduction in the number of outlets in this group from 134,999 in 1933, to 116,553 in 1935. During this two-year period about 4000 new car dealers went out of business, with the remaining ones holding on and cashing in on the upswing in new car buying that took place last year.

The preliminary figures in this census report include incomplete returns from five states—Colorado, Illinois, Maryland, Missouri, New York—where the field canvass is still in progress. Scattered schedules from other states received after the respective state reports were issued are also omitted.

Filling Stations in Principal Cities—1935

(U. S. Dept. of Commerce Preliminary Retail Census)

Cities (in order of population)	Number of Stores	Sales Amount (add 000)	Sales Per Cent of Total Retail Sales	Active Proprietors and Firm Members	Employes (full-time and part-time). Avg. for year	Pay Roll* (add 000) Total	Full-time	Part-time
New York City	2,228	$48,111	1.8	1,548	5,305	$6,453	$6,328	$125
Chicago	1,816	31,400	2.8	1,477	3,769	3,970	3,784	186
Philadelphia	1,010	13,575	2.1	731	1,808	1,880	1,764	116
Detroit	1,679	27,898	5.2	1,518	2,812	2,846	2,662	184
Los Angeles	2,766	37,998	6.6	2,432	4,266	4,593	4,367	226
Cleveland	1,116	16,211	4.6	960	1,508	1,701	1,571	130
St. Louis	899	12,198	4.1	726	1,470	1,476	1,333	143
Baltimore	415	9,576	3.3	241	1,255	1,359	1,318	41
Boston	397	9,087	2.1	255	975	1,089	1,037	52
Pittsburgh	398	8,646	3.2	218	1,145	1,164	1,110	54
San Francisco	411	9,598	3.2	265	1,243	1,479	1,438	41
Milwaukee	566	9,227	3.9	425	955	1,007	925	82
Buffalo	493	9,392	4.6	353	1,058	1,136	1,075	61

*Includes no compensation for proprietors and firm members of unincorporated businesses.

New P-L Law Complaint

WASHINGTON, Oct. 19.—The fourth complaint under the Robinson-Patman law was issued today by the Federal Trade Commission. It is against United States Quarry Tile Co., of Canton, Ohio.

The tile company sells and distributes tile in commerce in several states other than Ohio and West Virginia where it has factories, the complaint sets forth, apparently in an effort to show interstate commerce is involved.

The charge is that the respondent allegedly discriminated in price by allowing a 15 per cent discount on all glazed tile, regardless of quantity, to so-called wholesalers, while allegedly denying the same discount to tile contractors. The wholesalers are in fact retailers, selling tile to the ultimate consumer and are thereby in direct competition in the sale of tile with the tile contractors, according to the complaint.

N.P.N.'s Tax Collector Used by Birmingham Station

NATIONAL PETROLEUM NEWS' *caricature of the gasoline tax collector has been worked into a sign on a building adjoining the station of the East Texas Oil Co., at Third Avenue and 13th Street, in Birmingham. It brings home to motorists that they have to pay 8 cents a gallon tax, one cent federal, one cent city and 6 cents state tax*

Code for Tire Industry Officially Approved

WASHINGTON, Oct. 17.—The Federal Trade Commission has approved and promulgated a set of trade practice rules for the rubber tire industry.

The so-called tire code embodies provisions of the Robinson-Patman anti-price discrimination law, as well as the usual rules found in trade practice agreements approved by the trade commission.

Some independent tire dealers are hopeful that the R-P law section can be invoked against the deals reported to have been made by some tire companies to manufacture tires for, or to sell them to, mail order houses and some larger oil companies at prices not available to the small, independent dealer.

The FTC says that tire manufacturers number about 50 while distributing units and other outlets exceed 100,000. The total capital investment of the industry is said to be approximately $2,000,000,000, with an aggregate annual volume of business amounting to about $750,000.

The trade practice rules were approved by representatives of the industry at a conference June 4 in Chicago. Later, the FTC tentatively passed upon the rules and released them for comment and suggestions by interested parties.

There are 13 Group I rules prohibiting practices which are considered unfair methods of competition as defined by the statutes and decisions of the FTC and the courts. The commission promises to take legal action to prevent these practices in or affecting interstate commerce.

The R-P law provisions make up one of the Group I rules. Others prohibit defamation of competitors, selling below cost, false advertising, misbranding and misrepresentation. Among the practices specifically prohibited are selling used, rebuilt or repaired tires as new tires, and representing the tire to be of a higher quality or grade than in fact it is.

Used tires must be conspicuously branded with the words "SECOND - HAND", "USED TIRE-REBUILT", or the like. Second line tires must not be sold as "first line", and so forth.

There are also two Group II rules which are not enforceable by law. Rule A states that the industry condemns the failure of any member of the industry selling at wholesale and retail in the same establishment, to differentiate between the two types of transactions. Rule B urges manufacturers to brand each tire truthfully and conspicuously as to the number of plies it contains.

Oil Co-ops Have 2.1% Of Gas, Oil Sales

CLEVELAND, Oct. 15. — Eighteen per cent of the total loans of the Farm Credit Administration to farm purchasing co-operatives, outstanding on June 30, 1936, were made to support the co-operative purchasing of petroleum products, according to the American Retail Federation. It estimates that between 10 and 30 per cent of farm co-operative purchasing is competitive with private retailing.

Outstanding loans to farm purchasing co-operatives on June 30, 1936, totaled $5,633,678, of which $1,017,471 was used to purchase petroleum products. These loans were divided into two groups: working capital, $3,379,127; and facility loans, $2,254,551.

During a similar period the Reconstruction Finance Corp. loaned $5,909,517 to private retailers and wholesalers, of which $377,700 went to wholesalers of petroleum products.

Interest rates on the Farm Credit Administration's loans to farm co-operatives ranged from 3 to 4 per cent, while the

Reconstruction Finance Corp. collected 5 per cent on its loans to private borrowers.

The American Retail Federation estimates there were 616 co-operative gasoline and oil associations in 1933 with maximum sales of $32,000,000. This was estimated to be 2.1 per cent of the total retail sales of gasoline and oil made through filling stations in that year.

Build Plant to Run On Talco Crude

TULSA, Oct. 17.—Premier Asphalt Co. will build a 3500-barrel cracking and asphalt plant at Mount Pleasant, Texas, near the Talco field of Titus and Franklin counties. This is north of the East Texas field.

The company is backed by Capt. J. F. Lucey, R. E. Fair and the firm of Byrd-Frost, Inc., all operators in the Talco field. Sylvester Dayson, president and general manager of the Premier Refining Co., Longview, is interested also in the new company.

A six-inch pipeline will be laid from the field to the plant, a distance of about 15 miles and two 55,000-barrel tanks are being erected. The line will be operated under the name Talco Pipe Line Co., which has been in existence for several months and which has marketed oil from the field, shipping to refiners by rail. This company effective Oct. 15, posted price of 60 cents for Talco oil, average gravity under 25° A.P.I.

The new line will be in operation in about 30 days and the refinery within 120 days, Capt. Lucey announced.

Auto Trade Cited For Stabilization Effort

WASHINGTON, Oct. 19.—Charged with a combination to control the market and fix and maintain resale prices, five trade associations composed of manufacturers and jobbers of automobile parts and accessories have been named in a complaint issued by the Federal Trade Commission.

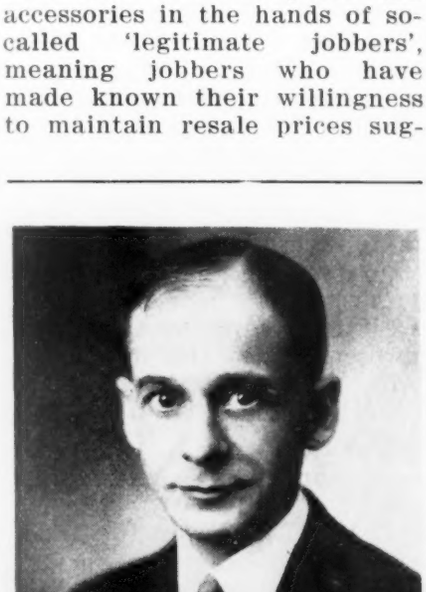
Two of the respondents, the National Standard Parts Association, of Detroit, and the Motor and Equipment Wholesale Association, of Chicago, are national organizations. The other three are regional groups, namely: Automotive Trades Association of Greater Kansas City, Mississippi Valley Automotive Jobbers Association, and Southwestern Jobbers Association.

The present case is a consolidation of two previously issued complaints, the FTC announcement said. The new complaint is said to allege substantially the same charges as the two old complaints.

Representing a substantial proportion of the total business of all manufacturers and jobbers of automobile parts and accessories throughout the U. S,. the respondents are alleged to have organized for the purpose of binding together the largest possible number of competing firms and to obtain their co-operation for a common end, the announcement said.

"Among the practices alleged to have been put in force pursuant to the agreements and conspiracies are the following," the FTC announcement stated. "Efforts to monopolize distribution of automobile parts and accessories in the hands of so-called 'legitimate jobbers', meaning jobbers who have made known their willingness to maintain resale prices suggested by manufacturer-members; efforts of competing manufacturer members and non-member manufacturers joining with them to fix sales prices to jobbers for comparable products, and various other devices designed to effect the general policy of price fixing and market control."

Some of the respondents are understood to have taken the position that they were only doing what they were required to do under the NIRA to achieve stabilization of their industry.



R. D. Packard

Packard Directs Sohio Cleveland Division

CLEVELAND, Oct. 19.—R. D. Packard has been named manager of the Cleveland division of the Standard Oil Co. of Ohio, succeeding P. W. Close who has been granted an indefinite leave of absence following a prolonged illness, A. A. Stambaugh, vice president, announced today.

Mr. Packard has been affiliated with the Standard Oil Co. since 1904, when he entered its employ as office boy. For the past two years he has been assistant sales manager of the company. A native of Cleveland, he served in the tank wagon department here from 1905 to 1916 and became tank wagon superintendent at Toledo in 1917. Mr. Packard served as field manager and assistant division manager in Toledo, where he became division manager in March, 1930.

Returning to Cleveland as manager of the company's industrial relations department in 1933, he was named assistant to Mr. Stambaugh, about a year and a half ago.

Mr. Close was forced to drop his duties, after 31 years of service, early this year and has been one of the outstanding figures in the city's civic and philanthropic circles.

With the announcement of Mr. Packard's appointment, E. C. Bourquin, Marion division manager, was named manager of the operating department. He has been associated with the company since 1915, when he took a job as clerk at the Canton bulk station.

Ask Court to Halt Tax Seizure Proceedings

WASHINGTON, Oct. 19.—Two Tennessee oil distributors have asked the U. S. Supreme Court to halt proceedings by Dancey Fort, state tax commissioner, to seize their properties for alleged non-payment of gasoline taxes.

They are Erle Hudson and Dixie Oil Co., both operating in Davidson county (Nashville), Tennessee. Hudson is charged with owing $8018 in state gasoline taxes and Dixie Oil Co., $2471.70, according to their petitions to the supreme court for writs of certiorari. Both distributors insist in their petitions they have regularly reported and paid the taxes due.

The county chancery court is said to have granted the petitioners a review of the tax charges but was overruled by the Tennessee supreme court. The petitions contend the state court erred in holding that the distributors could be required to pay the alleged tax without previous hearing. The appeal is from the state court ruling.

Gross Receipts Tax Case Before Court

WASHINGTON, Oct. 17.—The U. S. Supreme Court has taken under advisement the cases argued this week involving validity of the tax on gross receipts contained in the Iowa chain-store law.

The unit tax on chain stores, which brought about the so-called Iowa plan of marketing through leased stations is *not* involved in these cases.

An issue in appeal before the supreme court, brought by Walgreen Co., The Great A. & P. Co., and other chain-store systems, was Sect. 4b of the Iowa law. This section imposes a flat tax of $25 on chain-store operators where the combined gross receipts of each and all stores is $50,000; the tax is graduated upward on larger volumes of business.

Frank L. O'Connor, Iowa attorney general, was chief counsel for the state. Joseph G. Gamble represented the chain stores.

The lower court held all of the Iowa law valid except Sect. 4b, and the state appealed. The chain stores did not appeal.

The gross receipts tax, it was contended by the state, is a tax on a system of doing business —operating through chain stores. It is just as valid as the graduated tax on units of a chain, the principle of which was upheld by the Supreme Court in the Standard Oil case in 1935. The large sales volume of the chains, in addition to the number of stores, gives the chain-store operator many advantages not available to the small, independent merchant, O'Connor contended.

For the chain stores, it was contended that the gross receipts tax violates both the state and federal constitutions. It is "discriminatory" in that it exempts co-operative associations, dealers in ice, lumber, coal, grain and feed, and stores in unincorporated villages, counsel said.

Despite O'Connor's contention that the Iowa tax was levied on a system of doing business and therefore not within Supreme Court's decision in the Stewart case which invalidated the Kentucky gross receipts' tax, counsel for the chain stores said that the ruling in this case applied to the Iowa law.

Three Executives Give 90 Years of Service

CHICAGO, Oct. 15. — Ninety years with Standard Oil Co. of Indiana is the combined continuous service record of three directors of the company.

Allan Jackson, vice-president in charge of sales, recently received a diamond studded pin which designates 40 years of service. He started in 1896 as private secretary to the general manager of sales, and has been in charge of sales for the past 16 years.

R. H. McElroy, vice-president in charge of traffic, has reached the 30-year mark. Mr. McElroy joined the company in 1906 as chief rate clerk after preliminary experience with a railroad.

Charles J. Barkdull, executive vice-president, has completed 20 years continuous service. He was employed originally in the accounting department in 1907 but after a break in his connection returned and rose to the vice-presidency, carrying a large share of the responsibility for the business and financial management of the company.

Left to right, Edward G. Seubert, president of the Standard Oil Co. of Indiana; Allan Jackson, vice-president in charge of sales; R. H. McElroy, vice-president in charge of traffic and Charles J. Barkdull, executive vice-president

November Crude Requirements

28,000 Bbls. Over October

WASHINGTON, Oct. 19

REQUIRED production of crude oil during November has been estimated at 2,870,300 barrels daily by the U. S. Bureau of Mines. This is an increase of 28,000 barrels over the daily average recommended for October.

The bureau attributed the increase to its decision to recommend no withdrawals from crude storage during November. The seasonal decline in gasoline consumption occurring between October and November is partially offset by a decrease in the gasoline yield recommended in anticipation of a season of peak fuel-oil demand, the report pointed out.

Estimated demand for Texas crude was placed at 1,109,300 barrels daily during November. This is 2400 barrels higher than the bureau's October estimate for Texas but is about 70,000 barrels below the state allowable of 1,179,948 barrels set by the Texas Railroad Commission for October.

Domestic demand for motor fuel in November will total 38,720,000 barrels, or seven per cent higher than actual demand in November a year ago. Besides this, exports will total 2,400,000 barrels.

Taking into account benzol and direct sales and losses of natural gasoline, an estimated total of 700,000 barrels, the bureau placed required production of gasoline at 39,920,000 barrels. This was distributed among the refining districts, as follows:

District	Barrels
East Coast	6,250,000
Appalachian	1,520,000
Indiana-Illinois	6,450,000
Oklahoma	2,950,000
Kansas-Missouri	2,500,000
Texas Inland	3,100,000
Texas Gulf	8,050,000
Louisiana Gulf	1,450,000
Arkansas-Louisiana Inland	900,000
Rocky Mountain	970,000
California	5,780,000
TOTAL	39,920,000

The percentage of natural gasoline in refinery gasoline for November was raised to 9.0 while the estimated yield of straight-run and cracked gasoline was placed at 44.14 per cent. Applying this to the net required production of 36,330,000 barrels of gasoline gives 82,310,000 barrels of crude required at refineries, the report said.

"As the contemplated yield of gasoline is lower than in October," the bureau points out, "it follows that comparatively more fuel oil should be available in November."

Runs of foreign crude were estimated at 2,700,000 barrels in November. Crude exports were figured at 4,000,000 barrels, while the estimate of "fuel and losses" was raised to 2,500,000 barrels.

Applying its "usual methods", the bureau determined the required production of crude by states for November. This is given below, together with comparative figures for October and for November a year ago.

Required Daily Crude Production by States for November

State	November	October	November, 1935
	(Figures in Barrels)		
Texas	1,109,300	1,106,900	1,027,600
Oklahoma	558,400	559,900	492,020
California	549,600	535,300	505,000
Louisiana	198,600	189,300	127,100
Kansas	154,500	155,000	143,300
New Mexico	75,600	74,200	52,200
Pennsylvania	46,900	44,400	40,000
Wyoming	40,100	37,300	33,900
Michigan	29,000	30,000	40,400
Arkansas	28,100	29,600	29,100
Montana	14,300	14,200	11,400
Kentucky	14,000	14,200	14,200
New York	12,200	11,500	10,000
Illinois	11,600	12,000	10,900
Ohio	11,200	11,400	10,400
West Virginia	10,300	10,400	10,000
Colorado	4,400	4,300	4,000
Indiana	2,200	2,400	2,200
	2,870,300	2,842,300	2,563,700

Independent Producers Arranging Program

OKLAHOMA CITY, Oct. 19—Members of 12 committees will meet here Nov. 29 to prepare reports for the annual convention of the Independent Petroleum Association of America Nov. 30 and Dec. 1 in Oklahoma City.

The committees are on activities, nominating, constitution and by-laws, balance of supply with demand with a sub-committee on unnecessary and excessive drilling, credentials, rules and order of business, membership, resolutions, public relations, domestic asphalt, budget and finance, and royalty owners.

Committee members are being appointed now. First meetings will begin at 10 a. m. Nov. 29, and continue through the day.

The convention opens Nov. 30 with reports by all officers during the morning and a general luncheon at noon with an address by a prominent independent. Addresses on the association's five-point program and an oil pageant by the Oklahoma City Chamber of Commerce will be given during the afternoon. The open house and annual banquet will be on the first evening.

The second day there will be an address, followed by committee reports. Meetings of the board to elect officers, and of the executive committee, will follow adjournment of the members meeting.

Oklahoma and Texas Fencing On Future Allowables

By LAWRENCE E. SMITH
N.P.N. Staff Writer

TULSA, Oct. 17

WHAT appears to be a prime bit of jockeying for position has been carried on by the regulatory bodies of Texas and Oklahoma.

Each postponed its statewide hearing to set production allowables for November. Each tried to get the other to speak first. Oklahoma won and the Texas hearing, Oct. 19, will precede the Oklahoma hearing, to be held Oct. 29. By that date, the Texas commission doubtless will have issued its allowables order.

Early this month, E. H. Moore, independent producer, filed a request with the Oklahoma Corporation Commission for an increase of 50,000 barrels in the Sooner state's allowable. He did this after the Texas Railroad Commission had promulgated its October order, which left the U. S. Bureau of Mines recommendations in the lurch by about 73,000 barrels. His petition had been set for hearing Oct. 16 but at Mr. Moore's request was put over to Oct. 21.

As this is written the Bureau of Mines recommended production for Texas in November has not been revealed but the Oklahoma figure is 588,400 barrels daily, a cut of 1500 barrels from the October allowable.

The guessing is that Texas will make little if any change in its allowed production, November against October. Col. Ernest O. Thompson, chairman of the Texas commission, has publicly expressed his discontent with the Bureau of Mines recommendations. He went to Washington, conferred with the bureau people Oct. 10, and asked them to change their ways of figuring things. On his return to Austin last week he said that the bureau makes its estimates so as to bring about a reduction in the crude oil storage of the nation to 200,000,000 barrels by 1940, which would mean a withdrawal of 90,000,000 barrels in the next three years.

The Texas commission routinely asks buyers of oil to submit their "nominations" of requirements prior to the monthly statewide hearings. This time it was in earnest about it and telegraphed the companies that had not yet sent in figures on Oct. 15 to hurry them along. At the close of the week the ideas of the buyers had been added up to more than 1,400,000 barrels daily. The similar basic, or starting figure, for October was 1,179,948 barrels daily, which, because of new wells drilled during the month, would be on the basis of at least 1,200,000 by Oct. 31.

Further, purchasers of Texas crude, when asked to forecast their demand for six months, appeared to be running up a total of at least 1,400,000 barrels daily over that entire period, on the basis of calculations revealed at Austin. While it is customary for "nominations" to be considerably ahead of actual requirements — everybody asks for a lot of oil so as to be certain of getting enough — it is seen that the Texas commission will have a record of demand that will support its avowed intention of getting what it considers its rightful share of the market.

Kansas has not been vocal in the debate on allowables, which is as yet confined to Oklahoma and Texas. Nor does Louisiana say anything.

Daily Average Production, Important Districts, American Petroleum Institute Figures

	Week Ended Oct. 17	Week Ended Oct. 10
	Barrels	Barrels
Oklahoma City....	153,800	148,300
Total Oklahoma..	586,750	563,700
East Texas	440,850	437,200
Total Texas.....	1,189,100	1,173,750
Rodessa	55,300	56,500
Total Louisiana..	232,900	234,850
California	587,800	589,000
East of Rockies..	2,489,500	2,435,950
Total U. S.....	3,077,300	3,024,950
Crude Imports....	164,430	46,860
Total New Supply	3,241,730	3,071,810

Texas Drops Into Line With Nov. Allowable

By Teletype

TULSA, Oct. 20.—Springing the greatest surprise of many months, the Texas Railroad Commission today revealed that its basic allowable daily crude production figure effective Nov. 1 will be 1,109,260 barrels.

This is 40 barrels less than the Bureau of Mines recommendation and on the basis of actual allowable as of Oct. 18 means a cut of nearly 97,000 barrels. By the end of the month the adjustment downward will be considerably more than 100,000 barrels.

The East Texas field's percentage of allowable was left unchanged at 2.32 per cent of potential. This means at this time about 440,000 barrels daily.

Col. Ernest O. Thompson, chairman of the railroad commission, warned that the drilling rate is too high. In the first nine months of this year, he said, 6879 producers were completed, while 661 exhausted oil wells were abandoned.

To Address Jobbers

INDIANAPOLIS, Oct. 19.—Senator Frederick Van Nuys will address the fall convention of the Indiana Independent Petroleum Association at its fall meeting here Nov. 4 and 5. Senator Van Nuys will discuss the Robinson Patman fair trade act.

When the Robinson-Patman act was passed by Congress Senator Van Nuys was chairman of the Senate's conference committee which met with House members to iron out differences between the two houses.

Pressure on Bureau to Boost Estimates of Crude Needed

WASHINGTON, Oct. 19

THE Bureau of Mines has been placed on the spot by some of the state oil enforcement agencies demanding that its forecasting machinery be revised.

It is not very clear what changes are desired in the method of estimating required production of crude from the various states. Indeed, the Bureau has written members of the state oil compact commission asking that they be more specific in their proposals.

But the motive behind such proposals is clear to all concerned—an increase in the Bureau of Mines estimates of required production. On the other hand the bureau believes that, if the oil companies were to cut down on the volume of gasoline they are making, they would not need to produce crude at the present rate.

With their allowables pinched back, producers have enviously eyed the increasing amount of crude being withdrawn from storage. They feel these withdrawals represent demand for their production which the bureau should consider when recommending "required production" quotas to the states.

On the other hand, the bureau feels that the producers, and the state agencies, too, do not fully appreciate its position.

The bureau does not merely calculate the amount of crude to be used in the coming month, it is pointed out. It is not so simple as that.

The bureau estimates gasoline consumption and then recommends how much it thinks should be manufactured and how much taken from storage. Then, it determines how much crude is needed to make this amount of gasoline and recommends how much should come from current production, imports and stocks.

The producer may question why the Bureau of Mines should concern itself with inventories when figuring demand for crude.

Well, it seems that, after the oil code died, the bureau fell heir to the task of guiding the industry to desired economic levels for gasoline inventories and crude stocks. To accomplish this, the bureau each month recommends changes in stocks, so that progress may be made toward what is regarded as the "economic" levels.

However, there is a hitch in the bureau's program—the industry does not always follow its recommendations. Because of this or not, the bureau's forecast of required production of crude is sometimes much less than actual demand, as indicated by current production plus withdrawals from storage.

Taking for granted that the wisdom of its gasoline stocks program is unquestioned, the bureau replies to the producers' complaints about this "shortage" by blaming the industry for not following its recommendations.

So, in the Bureau of Mines' forecast for November attention is directed to the heavy withdrawals from storage in the face of crude production averaging about 3,050,000 barrels during the five weeks ending Oct. 10.

"The average withdrawal from domestic crude stocks over this period was about 216,000 barrels, indicating a total demand of 3,266,000 barrels," the bureau pointed out. "The bureau's estimate of demand for this period was about 2,940,000 barrels, an apparent 'shortage' of 326,000 barrels.

"This shortage reflects largely the failure of the industry to live up to the gasoline program. The bureau suggested a withdrawal of about 4,000,000 barrels from gasoline stocks in this five weeks period, but only 1,750,000 barrels was taken out, a difference in terms of crude of nearly 150,000 barrels daily," the report said.

For the month of November, the bureau has recommended no withdrawals from crude storage. For October, withdrawals averaging 60,000 barrels daily were recommended; for September, 90,000; and August, 125,000.

Crude stocks are well below 300,000,000 barrels. The bureau may think that it can afford to ease up for the present on its program for curtailing crude stocks. Also, it has underway now a survey of the character, quantity and location of crude oil in storage.

Regardless of its decision about further curtailment of crude stocks, the bureau, it can be stated authoritatively, is going ahead with the gasoline program. For November, it suggests a 500,000-barrel reduction in gasoline stocks, although last November an increase of 480,000 barrels was recommended.

The bureau has decided that it would be impracticable to forecast demand for crude from the various states on a six months basis, as was requested by Col. E. O. Thompson, chairman of the Texas Railroad Commission, and others in the delegation from the Interstate Oil Compact Commission which conferred with bureau officials Oct. 10.

Forecasting even a national total, much less estimates for the individual states, so far in advance is fraught with danger of inaccuracies, officials of the bureau believe. If it is decided to make forecasts for longer than one month, it probably will be limited to three month periods.

Longer forecasts will have to take into consideration the amount of crude needed for fuel oil, and current statistics on consumption of oil for heating purposes are scant, it was pointed out. At present the bureau's estimates are based on gasoline consumption, with the fuel-oil factor taken care of by adjustment of the estimated yield per barrel of crude.

Polymerization Economics Studied At Refinery Operators Meet

By ALLEN S. JAMES
N.P.N. Staff Writer

TULSA, Oct. 14

QUESTIONS about polymerization now in the minds of the smaller, independent refiners were discussed at a refinery operators' meeting held in Tulsa Oct. 13. The meeting was the second in a series of four sponsored by the manufacturing committee of the Western Petroleum Refiners Association. Representatives of licensors of two of the better known polymerization processes had been obtained as speakers.

What polymerization is did not seem to be bothering the refiners. What they wanted to know concerned the economics of the processes.

They wanted to know, for example, what was the smallest unit now in operation; what was the smallest unit yet designed on paper that appeared to be practical. They asked repeatedly about initial investments, "pay out" periods, cost of operation of various sized units and potential yields of gasoline per thousand cubic feet of the various gases processed. It was evident that each refiner was trying to fit his residue gas production into the polymerization picture at a profit.

Dr. Gustav Egloff, director of research for Universal Oil Products Co., was the first subjected to the barrage of questions. In his paper, "Motor Fuel From Catalytic Treatment of Cracked Gases,"* Dr. Egloff had referred to the current construction of a unit to process 600,000 c. f. of gases daily. For most of the refiners present that was getting a lot closer home than any discussion of units handling gas volumes measured in millions of cubic feet daily.

The 600,000 c.f. plant, Dr. Egloff said, was being built in Pennsylvania. Immediately he was asked if a plant of that size would be profitable in the Mid-Continent area with a refinery price of 6 cents a gallon for finished motor fuel as compared with something like 8 cents a gallon in Pennsylvania. He replied that on 6-cent motor fuel it was possible for plants to pay off in from 50 days to two years, the kind of residue gases processed being the controlling factor.

One specific plant was cited by Dr. Egloff in answer to the questions about "pay off" period and cost of operation. This plant was designed to handle 1,800,000 c.f. of gas daily, with a yield of 6300 gallons of polymer gasoline. On the basis of an operating cost of 3.7 cents per gallon, inclusive of royalties, etc., and with a refinery netback of 8 cents a gallon for motor fuel, the plant would "write itself off" in about 300 days, he said.

That some of the refiners have their sulfur problems was indicated by one question, "Does sulfur in polymer gasoline affect its lead susceptibility?

From the discussions regarding this question and the experiences given by one or two chemists for companies operating polymerization units, the answer was developed that the sulfur does cut down the lead susceptibility somewhat, even when blended with a low-sulfur blending stock. It had been found, one chemist reported, that after the sulfur had been removed from the polymer gasoline the lead susceptibility of the blended material had been increased.

This question of sulfur cropped up again in the discussion of the paper presented by J. S. Carey of the M. W. Kellogg Co., on "Commercial Aspects of the Unitary Thermal Polymerization Process."

Mr. Carey said it had been found economical to remove sulfur from charging stocks high in sulfur.

The question of unit sizes was brought up also for reply by Mr. Carey. "What is the size," one operator asked, "of the smallest plant on paper which will pay out in three years or under?"

ONE of 200 to 300 barrels of polymer gasoline daily, Mr. Carey said, should meet that requirement. He added that this was based on an over-all refinery gas which had a yield of five gallons of polymer gasoline per 1000 cubic feet of gas, and with the polymer gasoline bringing 1 to 1.25 cent above the refinery price for "Q" gasoline.

In answer to a question regarding yields when butane alone or propane alone are processed, Mr. Carey said it was better to handle both gases together. And then the question in the minds of some refiners as to the advisability of using natural gas to make up the deficiency in refinery gases was answered when Mr. Carey was asked if natural gas and refinery gas could be combined. Mr. Carey said that it decidedly could be so handled.

While discussing corrosion it was brought out that a 4 per cent maintenance charge was ample to cover corrosion, and that in fact it had found that the polymerization units had been able to operate longer without shutdowns than had the cracking units.

"Stability of Gasolines to Sunlight" by C. W. Berger of the Globe Oil & Refining Co.,

*N. P. N., Oct. 14, p. 25.

Fort Worth Next

Third regional meeting of Mid-Continent refinery operators under auspices of the Western Petroleum Refiners Association will be held at the Blackstone Hotel Oct. 27.

Papers on the program are:

"The Economics of Gasoline versus Tractor Fuel," by C. G. Krieger, Ethyl Gasoline Corp.

"Corrosion of Heat Exchangers and Condenser Tubes," by N. W. Mitchell, Chase Brass and Copper Co.

"Petroleum Testing Methods," by R. W. Provine, Mid-Continent Petroleum Corp.

"Gum Inhibitors," by du Pont Chemical Co.

Wichita, Kan., and E. A. Todd of the Skelly Oil Co., El Dorado, Kan., was delivered by Mr. Berger. Investigative work at both the Skelly and Globe plants was described.

"Mr. Todd of the Skelly company," Mr. Berger stated, "has permitted me to announce that they are using a combination treatment to overcome instability of their blended straight-run gasoline. They are adding around eight per cent of P. D. butts to the straight-run and then stabilizing by the addition of sufficient duPont inhibitor No. 2. The latter is an amine, alkaline, and therefore tends to buffer the formation of acid bodies. Its development grew out of early attempts to use ammonia and ammonium compounds to fight color and haze formation in sunlight."

IN DISCUSSING the work done at the Globe plant, Mr. Berger said:

"I, of course, am familiar with the problem as we find it at the Globe at McPherson, Kan. We are refining a good deal of Western Kansas crude oil and have found poor stability to be more emphatic on this crude than on sweeter crudes formerly refined.

"Our straight-run gasoline was initially unstable to sunlight itself after plumbite treatment. It was stable sour, before or after caustic washing. The sweetening plant was then worked over, providing more adequate contacting, settling and water washing facilities. The methods of control were improved and speeded. The result was excellent stability without changing the type of treatment.

"We found, incidentally, that any method of sweetening that did not give a fast, quick settling break caused us trouble with sun stability. The less doctor used and the shortest contact time possible were advantageous. Any time that emulsion or color due to lead mercaptides in suspension carried past the first settler the result was lessened stability.

"Particularly important was the treatment and break when starting up the treater inasmuch as this caused 90 per cent of the carry-over troubles. Running the stream slightly corrosive for a few minutes at first prevented this and did not affect sun stability.

"Vigorous water washing was found necessary. All of this may be explained on the basis that revivified doctor contains varying quantities of cracked gasoline residuums, organo-acidic bodies and other contaminants, and that the smaller chance these have to become dissolved in the straight-run gasoline, the better.

"If, by reason of a poor break, these carried over into the water wash, sun stabilities dropped suddenly for the reason that dilution increased the solubility of these border line solutes in favor of the gasoline.

"Segregating the doctor used for straight-run gasoline only is also a solution to this trouble but requires additional tankage and is not as practical as close control and perfect breaks.

"We then had a stable straight-run but found, when it later became necessary to blend it with vapor recovery gasoline, doctor sweetened, that the blend was quite unstable to sunlight.

"Investigation showed that the trouble lay in the cracked recovery gasoline, originating from vapors from the cracking units which constitute normally 35 per cent of the total vapor recovery yield. The other 65 per cent is straight-run vapor recovery from the crude debutanizer.

"We found that the cracked recovery itself was unstable both sweet and sour. There seemed to be little to do about a situation of this kind. The instability was proven to be, by a process of laboratory elimination, caused by disulfide and polysulfide sulfur. We have not found any commercial method to date for removing these compounds other than treatment with sulfuric acid or sulfur dioxide, both of which were considered impractical on such a light fraction.

"The outcome was that we split the vapor recovery streams, sweetening them separately with plumbite, and blending the straight-run recovery (which was stable) with our stable straight-run gasoline, and the cracked recovery with cracked gasolines, where it caused very little or no trouble.

"It has been necessary, also, to take steps to prevent contamination of the stable straight-run gasoline with cracked gasoline with blending, transferring and loading. Any troubles we now have with poor sun stability are a result of unintentional mixing.

"There has been outlined two methods for improving sun stability of straight-run products, one practiced by the Skelly, the other by the Globe. Neither method is entirely satisfactory and both work some hardships on the refiner. In most cases, however, the hardships have been well repaid by lack of complaints."

Following the description of his balloon system, J. M. Wiggins explained, in response to questions, that the balloon system was not in competition with the floating roof, but that generally speaking the floating roof was more practical for working stock tanks while the balloon system was better adapted to storage tanks.

POSSIBILITY of "contamination" when tanks holding both sweet and sour crudes are tied into the system was suggested by one operator who said his company had 12 tanks tied into a balloon system, with some of these tanks holding sour crude and the others sweet crude. He had found that during the hot months no "condensation" occurred at all and no contamination resulted, but that during the winter months the wide differences between temperatures in the day and in the night caused some condensation and resulted in sufficient contamination to be noticeable. The sour crude tanks, accordingly, were blinded out of the system during the winter months, he added.

The highest vapor pressure to which the system is adapted, Mr Wiggins said, is 14 pounds without sprinkling the roof, and 18 pounds with a sprinkler system on the roof. Any higher pressures, he said, would require pressure storage.

Engine Test Method for Aircraft Motor Oils Described To S.A.E.

LOS ANGELES, Oct. 16

NEED for tests other than those now available, for predicting the merits of lubricating oils used in high output aircraft engines was stressed at the National Aircraft Production Meeting of the Society of Automotive Engineers at Los Angeles, Oct. 15 to 17.

Prediction was made that within the next few years present day specifications would be supplemented by requirements for tests which would show the lubricating value of oils under a variety of operating conditions.

A. L. Beall, Wright Aeronautical Corp., outlined the attitude of aircraft operators on the subject of lubricating oils. One question arising in the mind of every operator was the degree to which an oil would resist oxidation in the engine. An accepted criterion or method for testing this characteristic was declared necessary.

The author described a method for determining between oils which oxidize badly in an engine and those which do not. However, this method was somewhat unsatisfactory in that it did not distinguish between oils which are highly resistant to oxidation.

Three practical methods of selecting an oil for use in aircraft engines were considered to be: (a) Accept the selection of the oil refiner. (b) Prepare laboratory test specifications which the oil must meet. (c) Run full scale engine tests as a check on (a) and (b).

If the criterion for selection of an oil relies upon specifications, the author considered it desirable to reflect what each detail of a specification would show in engine operation. For this purpose he outlined a possible break-down of specifications into classifications according to their known relations to service experience. Conventional test requirements, under such a division, would then line up about as follows:

Items affecting performance: Viscosity, viscosity index, carbon residue, oxidation value, and pour point.

Items not directly related to performance: Gravity, flash, fire, neutralization number, precipitation number and emulsion.

Of the items directly affecting performance, viscosity was pointed to as the only one with which enough experience had been secured to predict the requirements of a new engine or an established engine under a new set of operating conditions. Viscosity index and pour point were considered important in their relation to cold starting conditions and to oil temperature control problems.

The author pointed to work done on automobile engines to relate Conradson carbon values to actual engine performance, and to other experiments to relate one oxidation test to engine performance. He was not aware, however, of any published data which permits the prediction of the significance of given values in these tests for aircraft engine oils.

Of the items not directly affecting performance, Mr. Beall said that such specifications are used more for the purpose of identification and relation to previous experience than for any other reason. Given two oils of similar values in all these specification details, it was felt sometimes safe to assume that they will give similar performance at moderate outputs in the engine.

The author offered evidence of the lack of correlation between specifications and engine performance. A numerical index of general performance quality plotted against flash, fire and A. P. I. gravity of the oil and performance plotted against neutralization number and emulsion test showed a general scattering of plotted points.

The author said some relation could normally be traced between oxidation value and engine performance but only in a wide range. In the work, few tests were attempted with oils showing a poor oxidation value, it was pointed out, because unsatisfactory results were invariably obtained with such oils.

Because the author realized the question might be raised that a specification may not successfully be broken down and can only be considered as a whole he plotted the numerical index of performance against arbitrary values where each detail of the specification was given a value of ten.

A perfect score in meeting the specification would be 110. None of the oils shown had any values in the specification details below satisfactory but scores ranged from 95 to 110. The author pointed out that if the specification cannot always correlate with practice, it is surely a poor basis for selection of oils for more severe service.

IN THE opinion of Mr. Beall, the most striking thing about a specification for a lubricating oil is that there is nothing in it to tell how well the oil will lubricate. In operation at high B. M. E. P. (225 pounds and above) where oil is the only variable between tests, wear may vary appreciably between oils of the same measured viscosity in as little as 5 hours of operation. "Conventional dive tests with their high inertia loads may be completed with one oil while the use of another results in bearing failure. All of these wear phenomena are reproducible at will and indicate a serious lack in oil specifications," Mr. Beall said.

Full scale engine tests, the author said, are initially more expensive but they prove the oils, and if carefully completed, rate them comparatively and establish a safety factor.

The method developed several years ago has been em-

ployed since, with minor modifications, and now has a background of some 3000 hours of full scale engine testing on 35 different oils.

Oils for high output engines are now approved for use only after successfully completing a prescribed full scale engine test. An oil must pass certain tests before being given an engine test.

THE first test is the W. A. C. Oxidation test. Essentially as follows: In an aluminum dish, a 3.5 cubic centimeter sample of oil is heated to 550° F. At the end of 30 minutes an additional 3.5 cc. is added while the temperature is maintained constant. The test is carried on for five hours with additions of oil at 30-minute intervals until 35 cc. of oil have been put in the dish and the last sample exposed to the heat for 30 minutes.

At the end of this time a sample is removed from the body of the oil, care being taken to avoid that part which is baked on the dish, and the sample is filtered to determine the naphtha insolubles and the naphtha insolubles which are soluble in chloroform. The results for each, described as sludge and asphaltenes respectively, are reported in milligrams per ten grams.

In a second preliminary test, the oil is run in the W. A. C. bearing test rig. This device determines the pressure at which the oil film is unable to separate the friction surfaces. The bearing used is of a conventional hard bronze and supports a hardened steel journal rotating at 1750 r.p.m.

Oil is supplied at a uniform pressure of 65 lbs./sq. in. at 45 degrees ahead of the loaded zone of the bearing. The end leakage from the bearing is maintained at a definite quantity for each increment of load by controlling the temperature at which the oil enters the bearing. This arrangement compensates for small differences in oil viscosity and also small differences in change of oil viscosity with temperature.

A new bushing very carefully bored to size and with smooth finish is used for each test. A comparison is made at frequent intervals with a reference to oil to insure that the apparatus and test conditions are maintained uniform. Tests are reproducible within — plus or minus 3 per cent as indicated by the average of a large number of tests.

A full scale engine test is usually conducted, the author said, in conjunction with tests to evaluate some factor or factors in engine design or material or both. Provided the severity of engine test conditions is equivalent to a minimum requirement, operation may be under one given set of conditions for 50 hours or alternated for shorter periods of low and high output to complete 50 hours of testing at a minimum of 0.40 horsepower per cubic inch of displacement. Frequency test routines as prescribed by the military services are employed.

At the completion of 50 hours of testing the engine is torn down for examination and measurement of wear. Sometimes, the engine is run for a longer period at a lower output after the prescribed 50 hours are completed, and the examination is deferred until such running is completed.

At the end of each five hours of the running test samples of the oil are withdrawn for analysis from the flow line. Fresh oil is added at this time to maintain the initial supply.

In the chemical laboratory a complete analysis for purposes of comparison is made of the new oil and the last sample of used oil taken from the engine at the end of the test. The samples taken at 5-hour intervals are mixed with precipitation naphtha and filtered through a crucible after which they are weighed to determine the naphtha insolubles and then the residue is filtered with chloroform and again weighed to determine what of the naphtha insoluble is chloroform soluble.

The results of the two determinations are reported as sludge and asphaltene contents, respectively. The viscosity of the used oil samples at 210° F. and the neutralization values are determined to find the increase in viscosity with use and the increase in acidity with use.

Accumulated sludge and asphaltenes for 15 and 50 hour periods of the test are compared with arbitrarily selected optimum or par figures and the used oil inspection results are reduced to a single arithmetical figure.

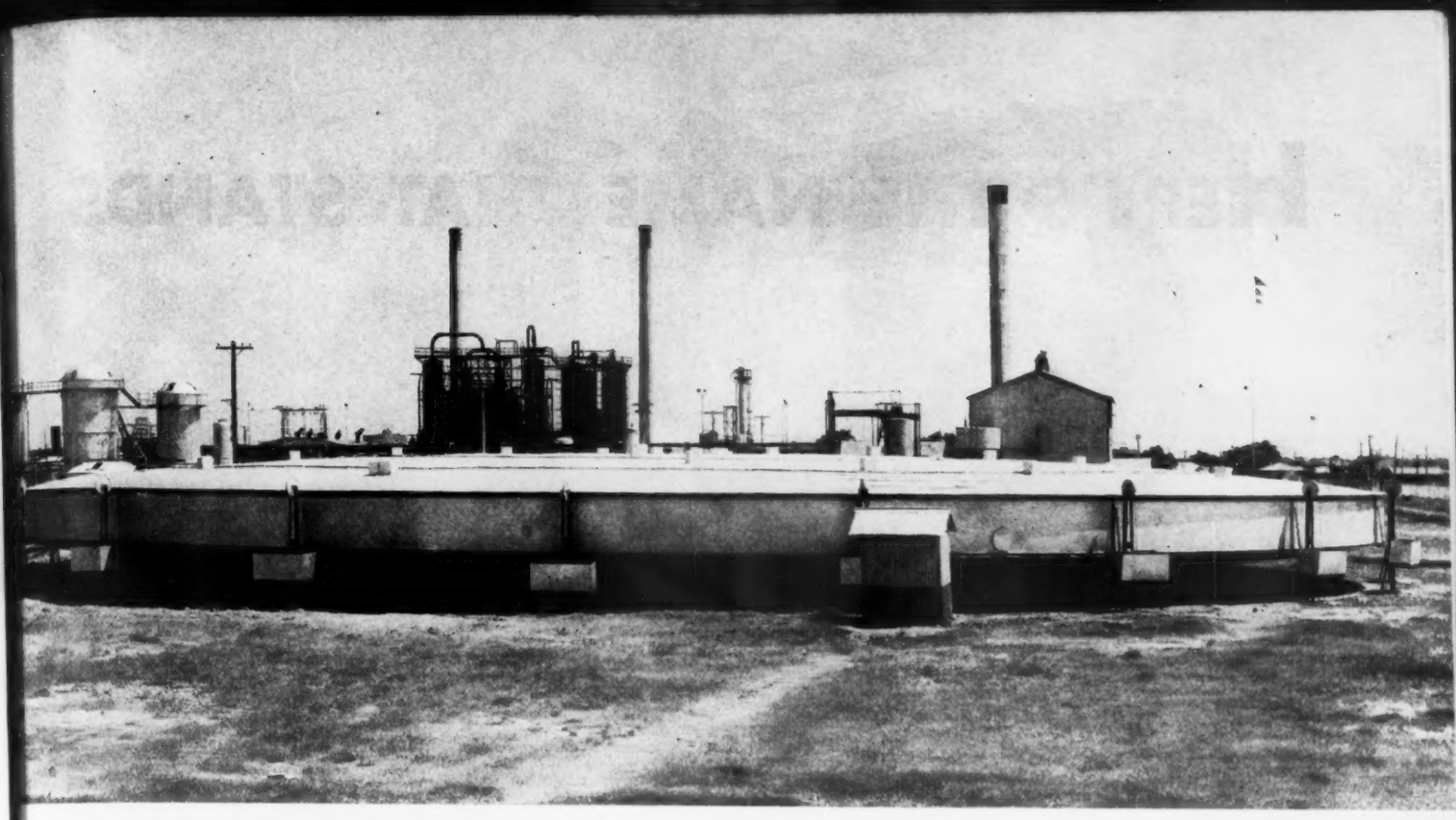
At the completion of the test, the author pointed out that the following data were available for the appraisal of oil performance: (a) The graphic log of test conditions. (b) The engine inspection results. (c) The used oil results.

Because differences in test conditions will qualify both the condition of the engine after the test and the oil, either favorably or adversely, as the severity of the conditions of test is greater or less. For this reason both engine inspection and used oil results are qualified in equations worked out as a result of experience which takes into account the horsepower per cubic inch of displacement, the temperature at which the oil is introduced into the engine and the oil temperature rise through the engine.

As being the more significant and reliable criterion of oil performance, the engine inspection is given twice the weight that is allotted to the used oil analysis results.

Some correlation between the described method of oil selection and air line operation is available to substantiate the validity of the method. Favorable results in the engine test have been reflected in good results in air line operation and unfavorable results have been reflected in high mortality of parts, particularly bearings and pistons.

During discussion of this paper, the point was raised as to why aircraft lubrication presented any greater lubricating problems than the diesel motors, which operated at much higher r.p.m.'s. This was answered by saying the difference was in the higher B. M. E. P. of the aircraft — 225 lbs. and above — as compared with about 125 in the diesel motor.



A 150-foot diameter, 150,000 cubic foot capacity Wiggins balloon connected to 24 refinery tanks of the Continental Oil Co. in a vapor saving system

Balloon Vapor Saving System Reduces Losses, Fire Hazard

By **JOHN H. WIGGINS**

(Presented under the title, "The Wiggins Balloon Systems," before the Manufacturing Section of the western Petroleum Refiners Association, Tulsa, Oct. 13, 1936).

• • •

THE storage and transportation of volatile and explosive oils is a "process" which must be in operation 24 hours of each day. A "process" is a means of effecting a result comprising the control of physical or chemical laws. Until recent years in the minds of most oil men the problem of oil storage has been a mechanical job to get done.

When petroleum executives and engineers come to a full realization that it is a "process" and that the machinery for effecting results requires constant supervision, then in a few years the fire and explosion hazard and the evaporation loss will be brought close to an economic minimum.

The distillation and cracking of oils into gasoline and other products are *processes.* Many other operations in the refinery are *processes.*

The factors normally placed under control by these processes are: a. the force of gravity; b. temperature; c. pressure; d. chemical changes; e. volumetric expansion; f. friction.

During the development of refining processes, these factors were recognized and studied and placed under greater and greater control about in the order in which they are enumerated. The results of such development have been a tremendous improvement in the products and the cost of production.

In handling and storing oil we have all of the above enumerated factors to consider. In the case of refining processes we use and vary these factors one or more at once in order to improve the products and decrease their cost. In the case of transportation and storage, we find ourselves in an entirely different position. We are now in a position of defense. The gasoline and crude oil must be defended against the inroads of these very same factors.

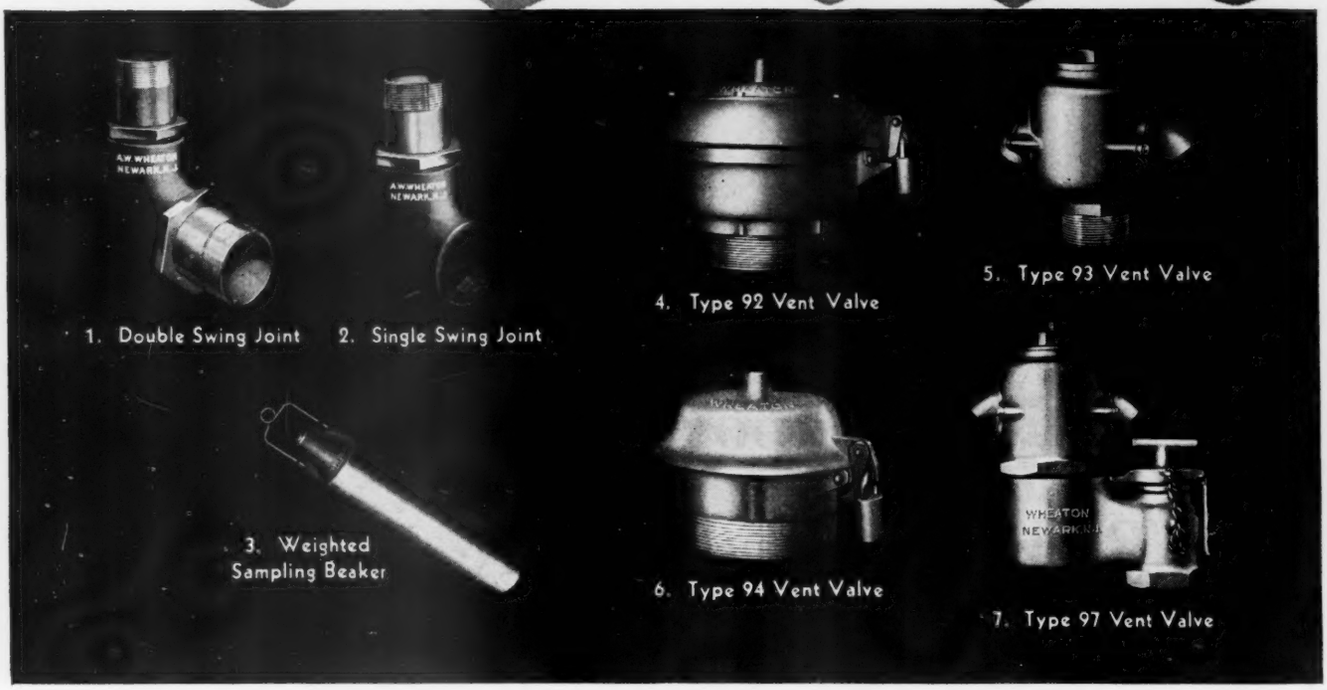
The history of transportation and storage shows that up to about 15 years ago, the only factors given much consideration were the force of gravity and friction. The result of neglecting the other factors was tremendous losses in percentage of the volatile products, which at the same time lowered the quality.

Along about 1921, the oil industry began to grow conscious of this fact. The first of the factors partially controlled was temperature; next, pressure, and volumetric expansion.

At first it was a general belief among executives and some engineers that evaporation losses could be reduced only partially.

HERE'S THE NAME THAT STANDS

Whe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9. No. 7-F Fusible Wrench. Supplied with Type 100 External Valve. In case of fire, fusible metal in socket insert melts, releases stem and closes valve automatically.

10. Special Anti-Freeze Drain Valve, with Needle Valve. When drain valve is closed gasoline enters opening in elbow, displaces water and prevents freezing. When drain valve is opened, needle point closes opening in elbow, excluding gasoline and draining only water. Installed at any height on side of tank. Valve seat is *inside* tank—valve always *drains dry*.

11. Standard Anti-Freeze Drain Valve. Installed through side of tank, or through bottom. Valve seat is *inside* tank—valve always *drains dry*. No freezing, breaking or leakage.

12. Type 125 Loading Valve. Self-closing, angle valve for end of pressure system lines. Opens easily and closes quickly without hammer, chatter or knock. Protects pump casings and meters. Tops off perfectly. Prevents spillage.

13. Type 25 Loading Valve. Self-closing, angle valve for end of gravity lines. It is *counter-balanced*—which makes the closing action slow, smooth and easy. Spider can be supplied.

14. Type 26 Loading Valve. Differs from Type 25 only in shape. Type 26 is a straight valve for mid-line location in gravity systems.

15—Type 126 Loading Valve. Same as Type 125, except it is a straight valve, for mid-line location in pressure systems.

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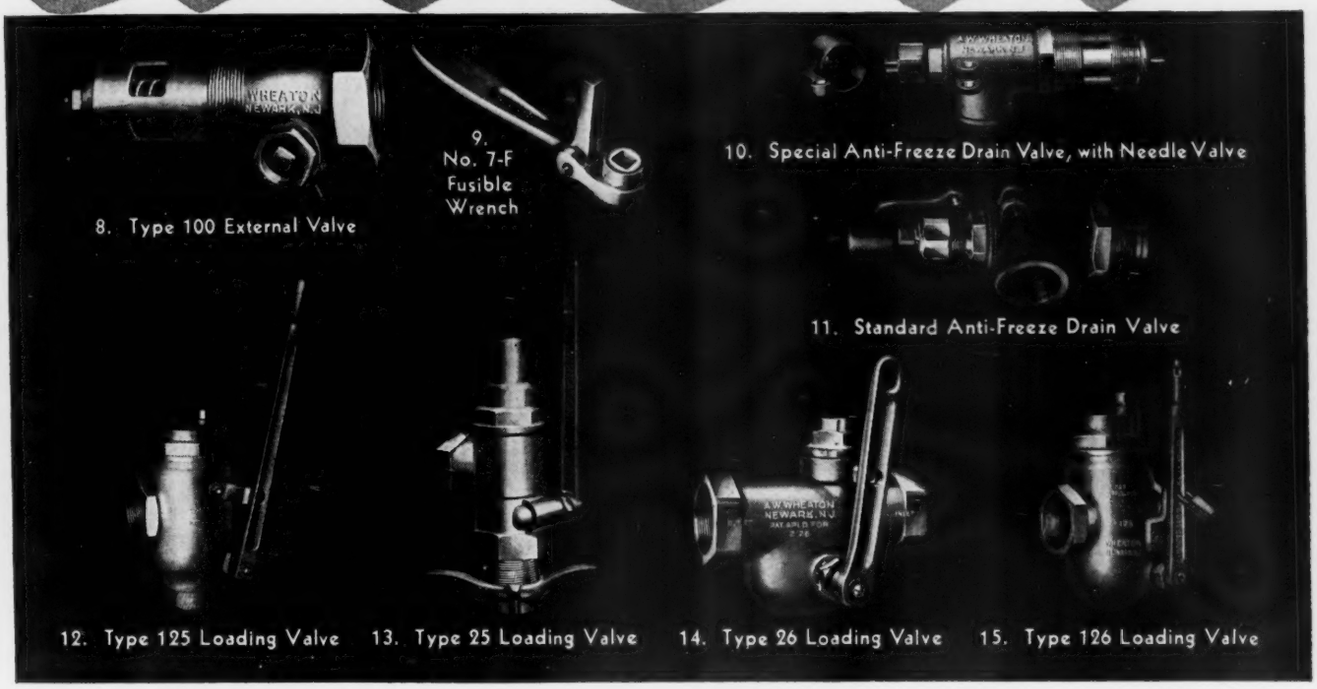
8. Type 100 External Valve
9. No. 7-F Fusible Wrench
10. Special Anti-Freeze Drain Valve, with Needle Valve
11. Standard Anti-Freeze Drain Valve
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FAUCETS - VALVES - JOINTS - COUPLINGS - FILLERS - NOZZLES - FITTINGS

They thought there must occur a considerable loss in any container. The developments of the present time, however, refute that idea. As a theoretical proposition, evaporation losses can be entirely eliminated if the correct process is applied to the problem at hand. It can be done on an economical basis, also. As a business proposition, it may not always be best to stop all loss, but practically all loss can be stopped with financial and material advantage. In most cases the price of gasoline cannot get so low that it will not pay to stop evaporation for the simple reason that the system to stop the loss will pay for itself at a price per gallon which is far below the cost of producing gasoline.

A GREAT many devices and materials have been developed and used which have decreased evaporation and fire losses. This paper describes the balloon system only.

The complete balloon system consists of:

1. The balloon.

2. Special vent valves at the balloon.

3. Vapor lines interconnecting the storage or working tanks and the balloon.

4. Tank fittings, comprising a. gastite vent valves set at a pressure higher than the venting pressure of the balloon, b. special gaging and sampling device, c. manometer for correcting gage readings.

5. Supply of gas to the balloon with valve automatically operated by the balloon.

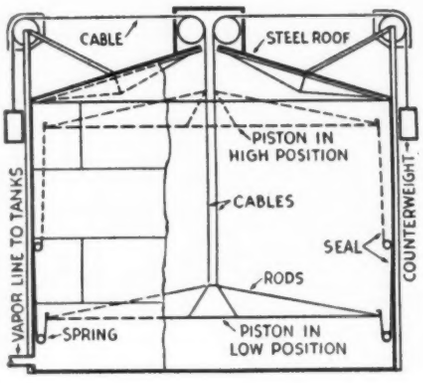
The balloon system involves not only a process but also a device which is a very low pressure, all steel, dry gas-holder having no "seal." It depends for its change of volume upon the slight flexing of two steel diaphragms. This device is called a "balloon" for the reason that this word best describes its operation. The development of this balloon has been the most important part of the development of the whole System.

To bring the balloon system for the prevention of evaporation and fire in oil and gasoline tanks to its present state of development has taken about seven years. The important features of this development will be noted for the purpose of a better understanding of the finished product.

The first experimental balloon was built in 1929 at Okmulgee, Okla. It was designed to determine something about the amount of pitch that could be given the top diaphragm without risking failure due to excessive flexing. In a 50-foot diameter diaphragm, a pitch of 36 inches in 15 feet of radius was built. This was quite evidently too great, even though it had completely flexible areas for relief. It did operate, however, but was abandoned without putting it into service.

Another problem in connection with this whole process is to keep the pressure on the cone-roofed storage tanks as low as possible for several reasons. Therefore, the next balloon was built with the idea of determining whether this type of structure could be built of very thin galvanized plates. Hence, in 1930, an 90-foot diameter, 22,000 cubic foot commercial installation was made, using 22 gage galvanized steel sheets. These were only 1/32nd inch thick.

A hook seam, with cement and a small rivet at about 6-inch spacing was used. A pitch of 18 inches in 20 feet of radius was built into the upper and lower diaphragms, which was in the range of experience with the breather roof. This structure operated successfully for several years connected to one 55,000-barrel gasoline tank. Though this type structure could be built in this manner if sufficient care and expertness were used, it was deemed too difficult for a production specification.



Line diagram elevation of the piston type balloon discussed in the accompanying article

Between 1930 and 1932 several experimental balloons were built to test various types of design and methods of construction.

In the spring of 1933 a 128-foot diameter, 100,000 cubic foot balloon was built which had a 16 gage welded steel top and a 14 gage welded steel bottom. This structure also embodied the principle of flexing the peripheral portion of the bottom and operating the balloon throughout its whole range of volume under a slight pressure. (Some of the early balloons had operated for a part of their volumetric range under a slight vacuum). It was determined from this structure that 16 gage could be successfully welded and would operate. But again, for a production job 16 gage was believed to be too thin.

In 1933 and 1934, four large balloons and a small one were built, ranging up to 350,000 cubic feet capacity, having 14 diaphragms and 11 shells. During the building and operation of all these balloon systems it became evident the extremely low pressures—namely, from $\frac{3}{8}$-inch to 1 inch of water—which had been striven for—were not necessary if all the tanks connected to the system were really gastite and had the proper fittings for their operation.

THEREFORE the balloons built in 1935 and thereafter had 11 gage diaphragms, both top and bottom. With this weight of metal it is easy and practicable under regular conditions of steel plate construction to get a good welded job. The working pressure range is from 1 inch to $1\frac{5}{8}$ inches of water. This higher pressure is just about equal to the weight of a 3/16-inch plate cone roof.

When the balloon is full and venting the cone roof is not quite lifted off its rafters and hence no strain is placed upon it. In this connection it may be pointed out that the balloon is always lower than the tops of the tanks and hence the vapor column, which is heavier than air, throws a pressure varying from $\frac{1}{8}$-inch to $\frac{3}{4}$-inch of water, depending on the richness of the vapor and the net height of the vapor column. Thus the

Knock knock

Knock knock isn't a new game —it's as old as the automobile

But it's a mighty expensive game for you when it is played in a customer's engine with gasoline you sold him

That customer wont come back

Dubbscracking is the way to make gasoline that works instead of knocking

Dubbscracked gasoline keeps customers coming back for more

There is never enough Dubbscracked gasoline to go round

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entire pressure thrown by the balloon is not applied at cone roof.

Nothing has been said about technical details and principles involved in the design and operation of the balloon. It should be stated, however, that the venting mechanism for both pressure and vacuum is operated by the balloon diaphragms, which give tremendous power for operation. Thus they can be designed so that they are gastite and stay gastite, but still will open when necessary even though the seat may have ice on it.

An enumeration of the parts of the balloon as it is built today for balloon systems is as follows:

A 11 steel welded top diaphragm sloping downwardly toward the center.

A 11 steel welded bottom built on an earth grade shaped so that the peripheral portion of the steel bottom slopes upwardly until it meets the top and then slopes downwardly toward the center in such manner as to support the top when the balloon is empty.

A vertical shell which joins the peripheries of the top and bottom diaphragms.

Compression girders at the top and bottom of the shell.

Counterweights attached to the shell equal to the weight of the shell and a portion of the bottom diaphragm.

Devices placed on the top diaphragm which completely control its shape at every state of filling or emptying.

A single valve for both pressure and vacuum relief, actuated by the movement of the balloon during normal operation.

A double automatic siphon drainage system at the center.

A volumetric recording device is optional.

Special vent valves at balloon

In order that the balloon itself, as well as the tankage, may be made completely safe against failure under any circumstances, such as accidentally blinding the balloon so that it had no vents or an excessive temporary snow load or a cloudburst, which would accumulate a great load of water, the balloon is equipped with an emergency valve which is sealed by a mixture of glycerine and water. It is so designed that it cannot be clogged or sealed shut in any manner. It should be so installed on the balloon that it can never be blinded. One or more of these valves placed along the vapor lines is a very cheap safeguard against pulling in tanks by sudden vacuum or by failure of tank vents to operate due to sticking. In a normal operating system these emergency valves never open.

Vapor Lines

The principal problem is to get large diameter lines installed at a low cost. Standard type pipe with thick walls costs too much, for the twofold reason that the pipe itself has a high cost and, secondly, the cost of the support and installation is high. Thus, thinwalled pipe was adopted.

One of the early installations had a pipe of special design, being made up in the field. It was of 22 galvanized iron, octagonal in cross-section, with a special cast iron ring for the joint, and a hooked and soldered seam. It worked out satisfactorily, the main objection being that special tools and technique were necessary to manufacture it. The final result has been to buy all pipe ready fabricated, or to roll it in the shop and weld all seams in the field. All fittings are cut and welded in the field. The gage used is from 14 to 11. Using such light pipe makes it possible to use very light angle iron supports in concrete bases at from 30 feet to 40 feet centers. The pipe is placed just above ground or as high as local circumstances demand. If possible the pipe is maintained in a hydraulic gradient from tank to balloon. In any case an automatic siphon drain is placed at each low point so that liquid will never fill the pipe. Ordinarily the vapor line is connected to the tank at one of the existing openings. Such connections are made without taking the tank out of service.

Provision is made so that any or all tanks can be shut off from the balloon system.

Tank Fittings

Vent Valves. At present any standard make of vent valves can be used on the tanks. These must be set at a pressure which is in excess of that at which the balloon vents, since all venting (if there is any) should be controlled by the movement of the balloon diaphragms.

Gaging. It is preferable to use a gage well which reaches to within about one foot of the tank bottom. This device makes a fool-proof condition. The gager cannot allow any vapor to escape. A manometer is read in conjunction with the tape reading to get a correct result. Automatic gages are also good where it is permissible to use these.

Sampling. The best sampling device is a number of small diameter pipes placed at various elevations, projecting about three to five feet inwardly from the shell and terminating at the bottom of the tank on the outside, where a control valve is placed. If it is impracticable to install these, a second thief hatch cover is placed inside the existing one. This allows sampling with a very small amount of vapor loss, since this second cover is kept closed while running the cord through a small slot.

Make-up Gas. No matter how large the balloon, within reason, there will be times when it is empty and will then have to take in either air or some other gas. It is better to take in a permanent dry gas other than air. Thus in a short time all the air and therefore practically all the water vapor will be eliminated from the system. The benefits from this condition are principally two: first, the entire system cannot explode or catch fire internally even by spontaneous combustion because there is no oxygen present; second, the internal corrosion of balloon, piping and tankage will be very much decreased since not only is oxygen absent but also water vapor is decreased to the point where it will not condense.

Dry, permanent sweet gas should be piped to the balloon, where it can be used for make-up when necessary. It is allowed to flow into the balloon system through a valve which is operated by the balloon diaphragm just before the balloon becomes empty.

Maintaining the entire vapor space of the balloon system free

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Each company keeps its own identity, its own management, its own organization.

But they work together.

Their combined engineering and financial resources, experience and facilities are at the command of refiners in this country and every other country.

Parsons designs and builds Dubbscracking units—big or little—which are guaranteed by Universal. He also designs and builds all kinds of refining units and everything that goes into a modern refinery.

Parsons headquarters and Brassert headquarters are in the same building in Chicago.

Their service is within easy reach of your office and your plant—wherever they may be.

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of water and oxygen is one of the important assets of the entire process. It tends to make it fire safe and corrosion free.

A properly designed balloon system will stop practically all evaporation loss from both working and storage tanks. In the case of working tank losses, there should be a sufficiently large group of tanks so that the pumpings come somewhere near balancing. Depending upon the size of the plant, this figure may be from a few thousand gallons to several thousand barrels per day.

Use of Balloon System to Date

The system has been used in seven different types of service, as follows::

A balloon connected to a single large gasoline tank.

A balloon connected to several tanks containing sweet crude, and sweet gasolines of volatilities from high to low.

A balloon connected to sour crude working tanks handling up to 14,000 barrels per day through the station.

A balloon connected to complete refinery gasoline storage, including run-down tanks.

A balloon and large natural gasoline tanks.

A balloon and small bulk plant tanks located within city limits.

A balloon connected to all the tankage containing hot naphtha in a lubricating oil process.

A balloon system will pay for its cost in from one to three years of operation. A careful check was made on a bulk plant installation which showed that it would pay out in from two to two and one half years. These small plants are the slowest to pay out because their savings are least per dollar spent.

On one refinery installation which had been in operation for a year a man was sent to make certain observations. He checked all gages in all tanks for 24 hours to determine the number of cubic feet of vapor-air mixture which balanced. He also observed the number of cubic feet which went into and out of the balloon. The sum of these figures gave the total cubic feet per day, that the system was saving. In addition he took vapor samples at each tank and the balloon and ran them through an Orsatt apparatus from which was deduced the percentage of vapor. With these figures it is simple arithmetic to determine the annual volumetric saving. In the case under observation it showed an annual saving of from $30,000 to $45,000 per year, indicating a pay-out for the system of eight months or less. The current price of gasoline at the refinery was used in these calculations.

The balloon system comprising the tankage in a lubricating plant shows a saving of $4300 in four months' operation, indicating a pay-out in considerably less than a year.

In all normal balloon systems substantially 100 per cent of the vapor-gas mixture that leaves a tank during the day will return the next night and be absorbed on the surface from which it came. The factors which caused the evaporation during the day are reversed at night. In such a system where the gas and vapor are run back and fourth over and over again each hydrocarbon in the tank builds up a partial pressure which is just enough to cause all of its own kind to return whence it came.

Chemical Properties of Modern Bituminous Road Materials

By **NORMAN W. McLEOD***

PART 2

Asphalt Tests and Their Significance—The Adhesion of Bituminous Material to Mineral Aggregates.

(Presented before the Montana Bituminous Conference, Glacier National Park, Sept. 8-10, 1936)

PROVIDED that satisfactory bituminous materials can be purchased, the specification which is of possibly greatest importance to the user concerns the consistency or viscosity of the materials.

In general, low viscosity materials are used for dust laying and priming, due to their good penetrating properties; medium viscosity materials are most suitable for road-mix, and surface treatments; and high viscosity materials are used as binder for plant-mix construction, although in each case some consideration must also be given to the volatility of the bituminous material and to the grading of the aggregate with which it is to be used.

Viscosity is usually expressed as seconds Saybolt Furol, and the temperatures at which the viscosities are determined vary with the consistency of the bitumen, being 77 degrees F for very fluid, and from 140 to 210 degrees F for the more viscous, materials.

The float test, usually run at 122 degrees F, is used to express the consistency of a bitumen too viscous to be determined within reasonable time in a viscosimeter and too soft for a penetration test. It is frequently used as a measure of the consistency of the residue from the distillation test.

The consistency of semi-solid bitumens is determined by the penetration test, and sometimes is also expressed in terms of softening point. The consistency of solid bitumens is invariably expressed as the temperature at which the material softens (its softening point).

By making viscosity or penetration measurements at two different temperatures on the same material, the susceptibility to temperature change of various bituminous materials can be compared.

Flash Point. The flash point is an indication of fire hazard. It also serves to differentiate between cut-backs and non-cut-backs, and roughly indicates the nature of the solvent used in a cut-back material.

Water and Sediment. These are held to two per cent as a maximum. Both are adulterants, and water causes handling difficulties by frothing if the

*Research Engineer, Dept. of Highways and Transportation, Regina, Saskatchewan, Can.

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bituminous materials are strongly heated.

Percentage Penetration Residue. In the past, the percentage of 80 or 100 penetration residue was believed to indicate the "asphalt content" of a bituminous material, and the proportion of the original material which could be relied upon to supply permanent cementitiousness, or binding qualities, in a road surface.

For bituminous materials from the same source, cut-backs usually contain a greater percentage of a given penetration residue than non-cut-backs.

BITUMINOUS oils may be compared on a basis of a common consistency by means of further tests on the 80 or 100 penetration residue. It is difficult to say whether comparisons on this basis are justified, since the test itself may alter the materials from various sources differently, and so make the comparisons unjustifiable.

Exposure tests carried out by the U. S. Bureau of Public Roads have indicated that the loss on exposure practically equals the loss on the distillation of a material to 680 degrees F, whereas there appears to be almost no connection between loss on exposure and loss during reduction to 100 penetration residue.

There is a tendency to ignore this test in recent specifications for cut-back asphalt, and in its place to specify that the residue from distillation shall be used for the further necessary tests.

Distillation. The distillation test indicates the nature of the solvent used in cut-back bituminous materials and also the type of asphaltic base used in their manufacture.

For bituminous materials in general use at the present time, the residue from distillation to 680 degrees F of an M. C. (medium curing) material is harder than that from an S. C. (slow curing) product, and is softer than the distillation residue from an R. C. (rapid curing) product.

The distillation test combined with the viscosity test, indicates just how any particular bituminous material should be used. Thus for materials containing a kerosine-type solvent (M.C. cut-backs) the low viscosity bitumens are primers, the medium viscosity materials are binders for dense graded aggregates with road-mix methods, and the high viscosity materials are binders for dense graded aggregates with plant-mix methods of construction. When the distillation test indicates the gasoline-type solvent (R.C. cut-backs), the low and medium viscosity materials are best suited for surface seals or surface treatments, or as binder for open graded aggregates in road-mix construction, while the high viscosity materials are best suited as binder for open graded aggregates in plant-mix construction.

Ductility. The ductility of a bituminous material indicates its ability to withstand stretching. It is considered to be a particularly important test where road surfaces are subjected to extreme ranges of temperature. Ductility may indicate something of the nature of the bituminous material and faulty manufacture, since bituminous substances containing much wax or coarse carbonaceous matter have relatively poor ductility. Very high ductility in a bituminous material is also usually associated with high susceptibility to temperature changes.

The ductility test may be made on the one hundred penetration residue in the case of liquid or semi-liquid bitumens, on the distillation residue, or on the original asphalt if it is a solid.

The test is generally made at 77 degrees F. but may also be made at a lower temperature such as 4 degrees C. Abraham[1] states that there is a temperature for each bituminous material at which it possesses maximum ductility, and the bituminous materials chosen for any project should be those which have their maximum ductility at the average temperature to which the material will be subjected.

Oliensis Test. The Oliensis test has been much used in recent years as a criterion of the so called homogeneity of a bituminous material. Strictly speaking, no bituminous material is homogeneous since the ultramicroscope reveals it as a two-phase colloid system, consisting, it is believed, of a dispersion of asphaltenes in a solution of resins and oily constituents.

It therefore only requires the use of a filter with sufficiently fine pores to reveal the heterogeneous nature of all bituminous materials by the Oliensis test.

On the other hand, by using a filter with sufficiently large pores, all bituminous materials could be labeled as homogeneous by the Oliensis test.

Since all bitumens are heterogeneous, the Oliensis test as usually run merely creates an arbitrary standard of heterogeneity.

It is very likely that the heterogeneity registered by this test in the cases of some bituminous materials is due to the conditions of the test itself. In some asphalts, such as cracking coil products, the oily constitu-

Abstract of Part 1

● The first of these two articles, appearing in the Sept. 30th issue of NATIONAL PETROLEUM NEWS, dealt with the chemical constituents of asphalt, their properties and structure, their natural origin in crude petroleum and the manufacture of asphaltic materials.

A general acceptance was noted for their colloidal structure and approval was expressed for the view which considers the components, asphaltenes and carbenes, to be distinct entities dispersed in a medium consisting of a solution of asphaltic resins in the oily constituents. A fifth group of compounds present are asphaltic acids and their anhydrides.

The wide difference of opinion as to the origin of asphaltic materials was summed up.

The manufacture of asphalts was dealt with extensively and included the separation of natural asphalt from crude, production in cracking processes, the use of the oxidation process, and the development of cut-back asphalts and asphaltic emulsions. Both of the latter are means for using hard asphalts in a liquid state without the application of heat and are important in lowering highway construction costs.

[1]Abraham, Herbert, 1932, Asphalts and Allied Substances—3d edition, 2nd printing, p. 348.

ents are largely aromatic in structure and so particularly good solvents for the asphaltenes. The addition of a naphtha to such a bitumen would be expected to bring about the precipitation of some of the asphaltenes, particularly if the solution of the asphaltenes in the oily constituents was near saturation. In this case the registered heterogeneity would obviously be brought about by the test itself.

The U. S. Bureau of Public Roads have found that the Oliensis test can give no reliable information as to how a bituminous material will behave under exposure. They found that regardless of its so called homogeneity or heterogeneity before being exposed, in every case the bitumen after exposure was heterogeneous. Exposure residues from both homogeneous and heterogeneous materials were found to have what were believed to be desirable qualities[2].

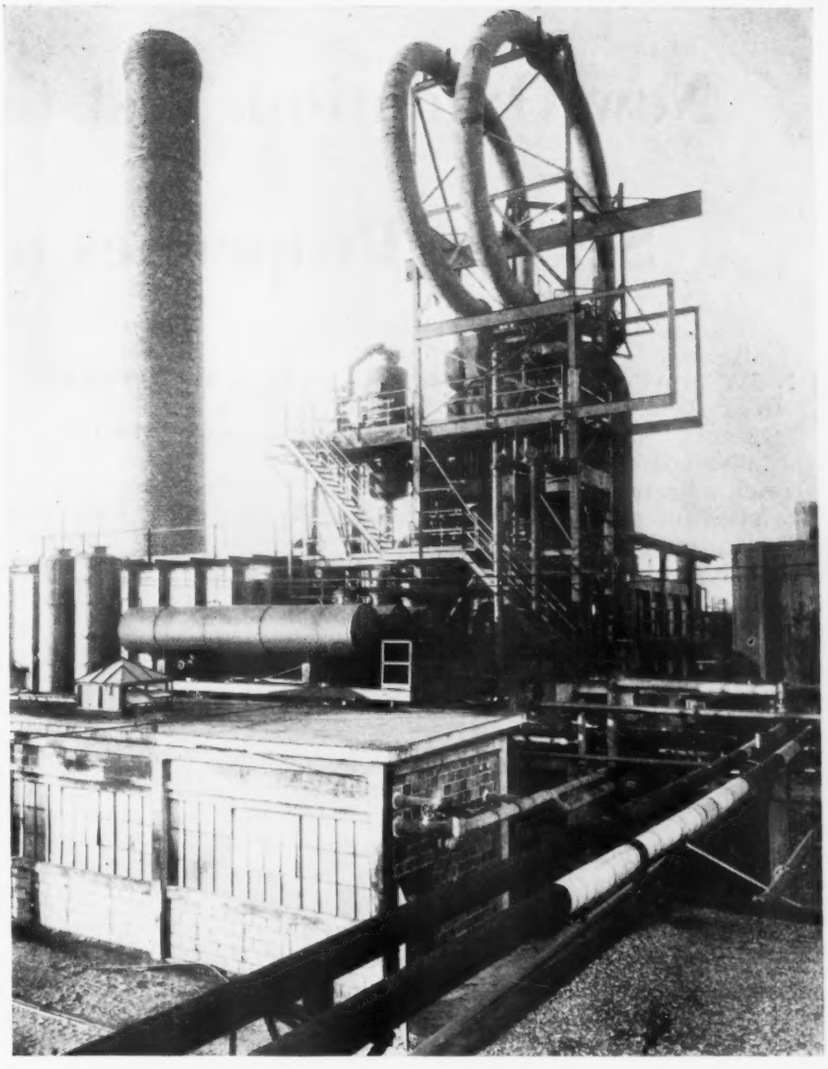
The Adhesion of Bituminous Materials to Mineral Aggregates

In recent years asphalt paving technologists have been considerably concerned because most aggregates have a greater adhesion tension for water than for asphaltic oils.. An aggregate tends to become coated by the material for which it has the greatest adhesion tension if it is available, and water therefore tends to strip the bitumen from the aggregate in most bituminous surfaces constructed at the present time, resulting in higher maintenance costs.

The problem of making the adhesion tension of aggregates greater for bitumens than for water is one which is at present receiving considerable attention and will receive more in the immediate future.

It has been observed that the higher consistency asphalts have a greater adhesion tension for aggregates than asphalts of low consistency, the asphalts of high consistency having greater adhesion tension for mineral aggregates than water has in some cases.

The higher asphaltene content of asphalts of high consistency appears to be the reason for their greater adhesion tension for aggregates, since the asphaltenes and carbenes are the most polar constituents present in any quantity in an asphalt.



A Two-Stage Asphalt Plant

Mineral aggregates are all polar materials, a polar material being one in which the molecules composing it, or parts of them, are surrounded by electro-magnetic fields due to a separation of positive and negative charges of electricity in the molecule or in some part of it. Polar substances tend to be attracted to each other due to an interaction and cancellation of part of their electro-magnetic fields, since this results in a decrease in free energy or increase in entropy of the system, as required by the second law of thermodynamics. A polar material on the other hand has very little attraction for a non-polar material. Examples of non-polar materials are mineral oils, gasoline, and the oily constituents of bituminous oils.

On the basis of the attraction which exists between polar materials, it can be understood why increasing the asphaltene content of a bituminous material should increase its adhesion tension for a mineral aggregate.

However, it has been found that a bituminous oil with a high percentage of asphaltenes may have a smaller adhesion tension for a mineral aggregate than another bitumen with a much lower asphaltene content. It is apparent from this that quality as well as quantity of the asphaltenes must be considered. The greater adhesion tension for mineral aggregates of some bitumens of low asphaltene content could be ex-

(*Continued on page* 40)

[2]Lewis, R. H., and Hillman, W. O'B., 1935, Further Studies of Liquid Asphaltic Road Materials, U. S. Dept. of Agriculture, Public Roads, pp. 112-113.

New Oxidation Test for Studying Service Properties of Greases

By **H. A. McCONVILLE***

(Presented under the title, "Accelerated Oxidation Test and Other Recent Developments for Evaluating Lubricating Greases," before the Fourth Annual Convention of the National Association of Lubricating Grease Manufacturers, Inc., Chicago, Oct. 12-13, 1936).

• • •

IN MY previous paper "Practical Tests for Industrial Greases" presented before your association a year ago, I outlined a desirable set of characteristics for grease for use in ball or roller bearings, without mentioning at that time just how we were going to satisfactorily test the grease to see if it met all these requirements. Since that time, we have developed certain tests to the point where we use them in checking greases and so are presenting them now for your information.

We have done quite a little work on an accelerated oxidation test for grease. Our first idea was to measure solely oxidation, but we feel now that our test not only indicates this but also any other changes which take place in the grease that impair its lubricating qualities. Our experiments of a year ago were conducted using thin layers of grease on watch glasses and measuring the increase in acidity and drop in flow point after subjecting the grease to heat, light and oxygen.

Although an increase in acidity was noted and the greases which turned most acid either became gummier, harder or dried out, we did not have any measure of what this change would mean to the operation of a motor. Our next step consisted in packing the grease in No. 203 Conrad type single row all steel ball bearings after thoroughly cleaning the bearings in carbon tetrachloride so that they turned absolutely free. The bearings were packed level with the sides with grease, the ease of turning noted, then the increased resistance to turning after oxidation, as well as could be determined by rotating the bearings by hand. This gave similar results to those obtained by the bearing companies, who pack their bearings with grease, store them for 18 months and then note the increased resistance to turning. But this still did not give an accurate means of measuring the change that had taken place.

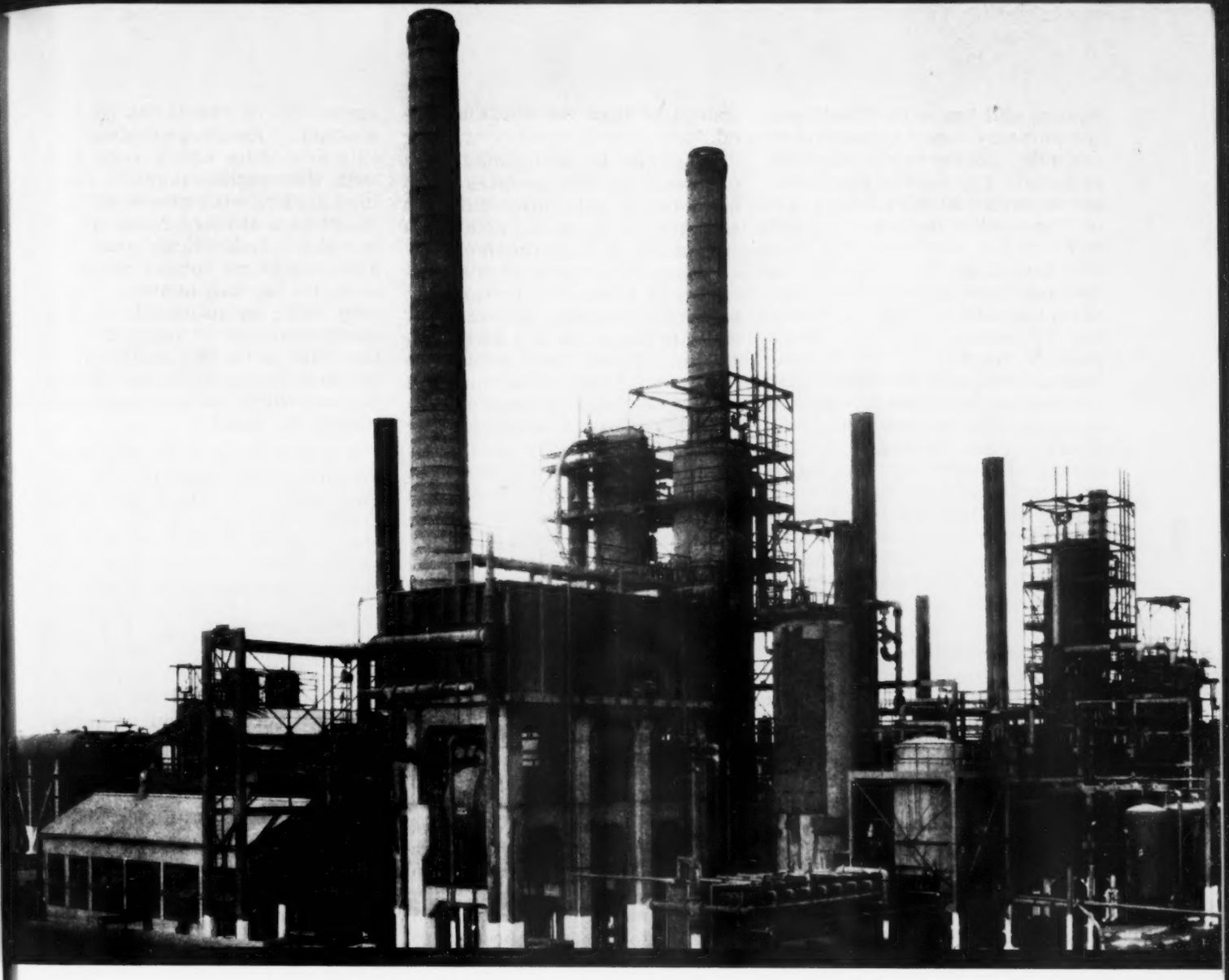
Several pieces of apparatus were built to give this desired measurement, but only the one in use at present will be described. It consists of two No. 203 bearings as mentioned above mounted about six inches apart on the two ends of a steel shaft. These bearings are held on by a washer and lock nut and should slide on the shaft quite easily, depending on the nut and washer to keep the center of the bearing from turning. The shaft and bearings are mounted in a special fixture made of steel about ½-inch thick. It has a bottom piece of steel about 6 inches long, 2 inches wide and ½-inch thick, to which have been welded two arms about 2 inches wide extending upward on a curve resembling a parabola to a height of about 6 inches. The bearings on the shaft fit into holes cut in the side arms.

In the center of the shaft a pulley 1½ inches in diameter is mounted and to this pulley is attached a piece of flexible stranded copper wire ⅛-inch in diameter and about 6 inches long fastened to an aluminum pan on which weights can be placed. The side arms were designed as described above originally so that the apparatus could be fastened to a bench leaving the weighing pan some distance to travel to the floor, if necessary. Since the use of this apparatus has now been extended to conducting tests on the behavior of greases at sub-zero temperatures it has been mounted in a suitable box.

USING the apparatus for its original purpose of measuring degree of oxidation the box, of course, is not necessary. What we do is measure the resistance to turning by loading the pan with weights until the shaft just begins to turn. The procedure used is to clean the desired number of No. 203 bearings thoroughly (we can oxidize 12 conveniently), pack two bearings with each kind of grease to be tested, pressing the grease in well around the balls with the small, flat blade of a penknife, rotating the bearing four or five times by hand, pressing in the grease again and then filling the bearing level with the sides with grease. Each pair of bearings is then placed in the testing apparatus and the number of grams to cause initial turning of the shaft is noted. Each bearing is then placed on a watch glass 2 inches in diameter and the 12 bearings are placed as close together as possible on a tray ready for the oxidation oven.

The oven we use for oxidation, as mentioned in my paper of a year ago, is about 18 inches

*General Electric Co., Schenectady, N. Y.



Polymerization Developments in Print

ONE of the important technical problems which looms large on the refiner's horizon is that of the adaptation, and adoption of a polymerization process to the processing of his refinery or natural gases, to produce motor fuel blending materials which will keep him abreast of progress in aviation and motor fuels of today—and tomorrow. N. P. N. has published more new and important technical data on this subject than any other industrial journal.

To this outstanding assembly of technical information is to be added, in the Nov. 4 Annual Engineering Number, a series of articles which will present the year's most interesting developments in this field. The data given in these articles will be the last word on Polymerization up to November, 1936. Remarkable strides have been made this year in perfecting the commercial application of thermal polymerization to refining. Correspondingly important advances have been made in the application of catalysis to polymerization of hydrocarbons, and in improvement of already successful processes. New type aviation fuels are being made available, their production based on polymerization processes. In no other publication can these data be found with the completeness, the conciseness, with which they will be presented in this Issue. In no other publication can the reader keep so completely up-to-date on this and other subjects of primary interest to every refiner.

On other subjects this Issue will bring the refiner abreast of the best and most important developments in his field. Some of these subjects are: solvent refining; alloys for high and for low temperature work; filtration; centrifugal pumps—how they are driven, operated, serviced.

THE REFINER WILL HAVE THE LAST WORD IN THE NOV. 4 ISSUE OF NATIONAL PETROLEUM NEWS

square and has a De Khotinsky temperature control mounted on the side. In the top of the oven is a hole 1½ inches in diameter through which we insert part of the socket for the electric light bulb. We still find that the action of light speeds up the reaction much more than anything else. This is borne out by observation that some greases packed in glass containers oxidize badly when only exposed to the sunlight, and the same is true of oils, this tendency being overcome when dark glass containers are used. At the top of the oven above the light bulb we have a large flat standard light reflector such as is in common use to throw the light down on the bearings.

AN ORDINARY 100-watt white frosted bulb is used for the light. We have thought about the use of a sodium vapor lamp as giving quicker results but as the apparatus for using it is complicated, costly and is not readily obtainable by everyone, we felt its use was not warranted even if it might save time. The bearings on the tray are placed under the light about six inches away from the bulb, a thermometer is inserted in the oven and with the light on, the temperature in the oven is raised to 175°F. We have chosen this temperature because it is quite often reached by motors in service and most sodium and sodium - calcium ball - bearing greases are recommended for and should stand a continuous temperature of 175°F.

Oxygen is bubbled through a bottle containing water at the rate of about two bubbles a second from a ¼-inch diameter tube and introduced into the oven. This adds a small amount of moisture, the presence of which causes some greases to become sticky; a condition also found in service and one which we would like to duplicate. The bearings are thus subjected to the combined action of heat, light, oxygen and moisture for a period of two weeks. They are then removed from the oven, cooled to room temperature and again placed in the testing apparatus where the number of grams weight required to turn the shaft is noted.

It might be mentioned here that one or two greases have been found with practically no change taking place after this treatment, but in the majority of cases there is a decided increase in resistance to turning; in some extremes the ratio of weights being 10 to 1 after oxidation. These tests should be conducted both on an original sample of the grease as received and on a sample after working thoroughly in the B. E. C. machine or in a motor at a temperature not high enough to change the structure of the grease. On this point of structure, I wish to comment later. A check of these two conditions is desirable because quite often in the manufacture of motors when they are packed with grease in the production line they may have only a short test run, and then under extreme conditions might be placed in storage for some time before being used. The grease is thus in practically the same as the original unworked condition. The other case is where the grease has become worked in the motor and changes with use. This change may be caused by oxidation or may be due to some other cause. As a result of these two checks an estimate of the stability of a grease in storage and in use can be predicted.

At this point it might be well to mention the storage stability test as developed by Norma-Hoffmann Bearings, Inc. This method determines the suitability of greases by measuring the oxygen absorption of the grease. A sample of grease weighing 13 to 15 grams is spread in a thin layer on several trays of either glass or some metal such as used in ball-bearings and those trays are placed in a steel bomb fitted with an accurate pressure gauge. Oxygen is introduced at a pressure of 110 lbs., the bomb placed in a bath of oil at 175° F. and the drop in pressure recorded at stated intervals. Breakdown in the samples occurs in one to twenty days, or more, and it is estimated that the normal oxidation rate of the grease in storage is accelerated 50 to 100 times by this method. Results obtained by this procedure check very well with observations made on bearings packed with grease and exposed in a storage room for 15 months. Indications that the grease was no longer satisfactory for a ball-bearing lubricant were a noticeable rancid odor, evidence of separation of the oil from the soap, or a marked increase in roughness noticed when the bearings were turned by hand.

I might state here that Norma-Hoffmann's method and my own agree on rating the same greases highest. In our accelerated aging method of test we have several agents present that may have a stiffening effect on the grease. These include not only heat and oxygen, but also light and moisture. If any of these agents cause a change in structure or properties of the grease it becomes evident in the increased resistance to turning of the bearing.

It may be possible to measure the change in stiffness of a grease which takes place under various conditions when the new penetrometer being developed by the Bearing Engineers Committee is available. This apparatus is designed to measure the consistency of very small sample of grease such as might be taken from a bearing and ranging all the way from a semi-fluid to a hard consistency. This penetrometer may prove of interest to the A. S. T. M. grease committee for use with very soft greases, especially if it gives results as anticipated.

THE apparatus previously described for measuring the stiffness of grease in bearings has also been used by us to determine the lowest temperature at which a particular grease can be used in a motor without giving trouble in starting. Tests were begun using the various greases in the original condition as received and then later after the greases had been worked in the B. E. C. machine to duplicate the consistency they would reach in a motor. The stand holding the bearings was encased in a fairly good heat-proof box so that the tempera-

ture of the grease in the bearings could be regulated to any desired degree.

Our box for these low temperature tests was made of Masonite de luxe quarterboard, but I would advise using a box made of harder wood in which the joints would not become loose under extreme cold. The box was designed to house the apparatus with the exception of the cord and balance pan. By recessing the front of the box, the cord extends outside through a hole so that the pan can be weighted without disturbing the cold atmosphere inside. This box is made with a removable cover, has a hole drilled through the cover for a thermometer to be inserted in the stand near the bearings to measure the temperature of the grease. We use liquid nitrogen as a freezing agent, pouring it through a funnel through the cover into tin cans filled with cotton waste. We read the number of grams to turn the bearings at room temperature and at each succeeding drop of 18°F. down to —40°F. and plot a curve.

OUR engineers have figured that a load of 1100 grams is the maximum that our two No. 203 bearings could stand if they were operating a motor and be free from giving any trouble. We, therefore, find the point at which each grease crosses this line and can predict the lowest temperature in which the grease can be successfully used. Results obtained to date show that this point is almost entirely a function of the freezing characteristics of the oil used. It does not change whether the grease is worked or unworked, or with varying the soap content within reasonable limits. A grease which has oxidized badly will freeze much easier, results being as much as 40°F. higher. This indicates that when a grease has been in service for a long time and may have become oxidized, it is liable to give trouble at sub-zero temperatures.

Of course, what we are measuring is the starting torque under various temperature conditions, but running torque and the conditions of the grease as regards channeling at low temperatures are also points of interest we wish to know more about. An apparatus to do this has just been set up and consists of a 1 h.p. d-c. motor having variable speeds from 550- to 2200-r.p.m. driving a shaft on which a No. 312 bearing is mounted surrounded by a standard housing. The housing which is free to turn on the shaft, is attached to a spring balance so that starting and running torque can be obtained as in the B.E.C. machine. The differences are that we have a much larger bearing, it is mounted horizontally and we can run it at speeds varying from 550- to 2200-r.p.m. As most apparatus troubles come from grease thinning out at low speeds (600- to 1200-r.p.m.), and from large bearings, we think we can obtain some interesting information.

We also plan to enclose this housing in a jacket which will enable us to cool the bearing to subzero temperatures, using liquid nitrogen as before. After operation at a certain temperature for a definite time we can stop the machine, remove the side of the housing and note the condition of the grease; when it is channeling and how well it lubricates. These tests backed with practical runs in motors we are hoping will tell us just how well our grease is lubricating at temperatures of —40°F.

The B.E.C. machines have now been on the market for some months and we have made quite a few tests on our instrument. We believe that the results obtained by this machine should warrant an investigation of its possibilities by all grease manufacturers as it gives definite indications of certain undesirable features which should not be present in a good ball-bearing grease.

We mentioned a year ago that there were several things we desired to know about grease, such as the proper viscosity of oil to use, range of worked consistency desirable, maximum amount of free acid or alkali that can be present without having any detrimental effects, best soap base to use, and effect of bearing metals on tendency of a grease to oxidize and turn acid with use. To this list we now add a desire to know more of what takes place when a grease changes its structure in service from the smooth buttery type we think desirable to the fibrous or spongy type which we consider inferior as a lubricant. How can this change in structure be prevented? What is the lowest temperature at which any grease can be used to give satisfactory lubrication? Can there be sufficient lubrication provided if a grease does channel?

It is possible to approach the answers to some of these questions, as we have some indications to guide us, although we still have a long way to go. Our work shows that oils of heavy viscosity are not suited for use at low temperatures when low starting torques are necessary, or for use at high speeds. We can, therefore, confine our tests to oils with a viscosity of less than 500 sec. at 100°F. The range of worked consistencies desirable for ball-bearing grease in our opinion should fall within $\frac{250}{10}$ mm. to $\frac{330}{10}$ mm. and this range may be narrowed when further experience has been accumulated along this line. As to free acid or alkali, we have made no progress except to note that the presence of free acid causes the oil and soap to separate more easily. When it comes to the question of soap bases, if our premise is right that a smooth buttery type of grease is most desirable, then a mixed base grease is indicated. Although most of the additions to sodium base greases in the past have been calcium soaps, possibly some of the other metallic soaps would give a desirable structure and hold it for a longer period of time.

The work of Norma-Hoffmann has shown that brass and cadmium both cause grease to oxidize much more readily than steel does and that chromium plated steel gives a lower oxidation rate than low carbon steel. As to the factors which influence the structure of the

grease, Klemgard has listed these as follows:

1. The nature of the fat, or fatty acid.
2. The characteristics of the mineral lubricating oil.
3. The temperature and rate of increase in temperature during saponification.
4. The ratio of caustic soda to saponifiable material.
5. The extent of dehydration.
6. The rate of cooling.

If this covers all the known variables, then a thorough study of them by the grease companies should tell us whether a grease of the desired structure can be made and maintained over a satisfactory length of time. We hope that our work with our bearing test machine mentioned before will give us the answer on low temperature operation of greases. The question of whether a grease can channel and still lubricate satisfactorily will have to be determined by observing bearings in operation with different types of greases.

In the past year we have endeavored to solve some of the many problems confronting us in the successful use of grease as a lubricant. As we overcome each obstacle we are approaching nearer to the time when grease can be used to advantage to replace oil for numerous applications. As the design of grease lubricated apparatus is much simpler and less costly than oil lubricated equipment, when this time arrives it will work not only to the advantage of the grease manufacturer but also to the machine designer who must constantly build more simplified apparatus at a lower cost. We are counting on your co-operation to hasten this time as rapidly as possible.

20% Gain on August 'Gas' Consumption

COLUMBUS, Oct. 19.—While Ohio gasoline consumption in August was 714,040 gallons below the all-time record established in July, it increased 11,479,515 gallons to 107,811,495 gallons from August a year ago, nearly 12 per cent. These totals were compiled from figures based upon reports received by the Gasoline Tax Division of the state.

Setting another record for the first eight months of the year, gasoline consumption in that period was 736,749,772 gallons, an increase of 72,127,603 gallons or 10.85% over the same period last year, when the previous record for eight months was set.

There were 145 cut price jobber bulk plants in operation in the state in August, compared with 149 in July and 134 in August, 1935. These plants received 814 cars and 132 trucks of motor fuel in August, compared with 815 cars and 145 trucks in July.

Skelly Sales Meetings

TULSA, Oct. 19.—The sales department of the Skelly Oil Co. began a series of sales meetings throughout the company's territory Oct. 19. The meetings will continue through Oct. 24.

Two crews from the company's Kansas City headquarters are conducting the meetings, which are for Skelly's jobbers and service station salesmen. One crew opened at Mankato, Minn., Oct. 19, and will work through Minnesota, South Dakota, Wisconsin, Iowa, Nebraska, and a portion of Kansas and of Illinois. The other crew, starting at Cedar Rapids, will handle a portion of Iowa, Illinois, Missouri, Kansas, Indiana, Colorado and Oklahoma.

I.P.A. History Sketched

TULSA, Oct. 8.—The history and achievements of the Independent Petroleum Association of America, from its fight in Congress for a tariff on foreign oil to the drafting of the code for the petroleum industry under the National Industrial Recovery Act and its continued efforts in behalf of measures it believes best serve the independent petroleum industry in this country, are outlined in a 10-page booklet published by the association. Headquarters are in the Thompson Bldg., Tulsa.

CHEMICAL

(*Concluded from page* 35)

plained by differences in the chemical constitution of the asphaltenes themselves, whereby they vary in polarity, or because a small percentage of finely divided, highly dispersed, asphaltenes gives a bituminous material greater adhesion tension for aggregates than a much larger percentage of partially flocculated asphaltenes.

The adhesion tension of bituminous materials for mineral aggregates can be increased by the addition of fatty acids, sulphonic acids, soaps, etc., which increase the adhesion tension between the bitumens and the mineral surfaces.

The adhesion tension of a bituminous material for an aggregate, especially the fines, and particularly the filler, has a marked effect on the final density that can be secured upon consolidating a bituminous road surface, the greater the adhesion tension between the bituminous material and the aggregate, the greater the final consolidation that can be produced for any given method of compaction.

It is likely that one or more simple and reliable tests for measuring or indicating the adhesion tension between aggregates and bituminous materials, and between aggregates and water, will be evolved in the very near future.

New Connection

TULSA, Oct. 17.—Hugh J. Ragon, for five years with the Rock Island Refining Co. as sales representative in Wisconsin, has resigned to become division manager for the Dale W. Moore Oil Co., with headquarters at Beaver Dam, Wis.

Mr. Ragon's first connection with the petroleum industry was in the producing fields in South America. Later he was employed by Platt's Oilgram, in the Tulsa office. He resigned that position to become a sales representative for the Burford Oil Co., later becoming affiliated with the Rock Island company.

ADVERTISING PAGES REMOVED

TURRET DOME

This Construction on Any But Butler Truck and Trailow Tanks Infringes Design Patent No. D95219 and Mechanical Pat. No. 2056820.

THE TURRET DOME

- IS FORMED IN THE TANK SHELL
- IS NOT JUST A FALSE HOUSING

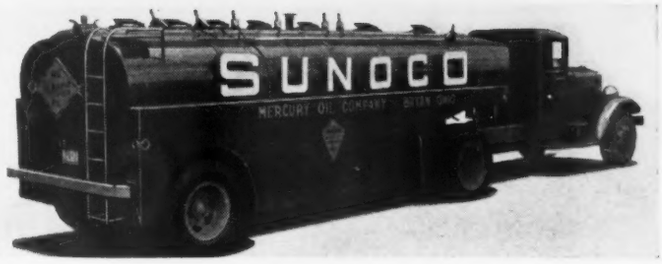
The Turret Dome has turned out to be the most essential factor in stream-lining truck and trailer tanks.

However, that was not the major consideration when Butler Engineers created the Turret Dome.

There were two considerations more important. The first was to provide safe and ample expansion room for each compartment. For first time this is accomplished with the Butler Turret Dome. It equips each compartment, whether long, medium or short, with an expansion chamber running its full length and providing expansion space in direct proportion to each compartment capacity. On a volatile liquid load in motion this is a highly important safety factor.

The second consideration, more important than streamline effect, was structural strength. Formed directly in the shell of the tank itself, the Butler patented Turreted Dome adds so greatly to structural strength that Butler Engineers were able to lighten the dead load to such an extent that Butler Truck and Trailow-Tanks are recognized as the tanks that carry the greatest live load per pound of tank weight.

False housings tacked on top of tanks for streamline effect, not only do not give you these major advantages, but actually create a fire and explosion hazard. Enclosed dead air space around raised expansion domes is extremely dangerous because it sets up the perfect condition for explosive mixtures.



AVOID THE RISK

It is a risk you cannot afford to take. Avoid it and at the same time cut your transportation costs by hauling more pay-load with less shrinkage in—

TRAILOW-TANKS AND TRUCK TANKS

BUTLER MANUFACTURING COMPANY

1241 Eastern Ave.
Kansas City, Mo.

941 Sixth Ave., S. E.
Minneapolis, Minn.

See to it that we are on your mailing list to receive future announcements about Patented Butler Truck and Trailow-Tanks.

Firm Name.....

By..... **Address**.....

City..... **State**.....

SHOULD THE OIL COMP A AIR CONDITIONING EQU I

By JOHN W. THOMPSON
N. P. N. Staff Writer

PART I

• • •

TO THOSE oil companies who look upon the oil burner as a means of maintaining and building future fuel oil gallonage, a new industry with an amazing potential volume will shortly demand a good share of their attention.

The new industry is air conditioning, and it is closely related to the oil industry because of one of its many functions — heating. Air conditioning for homes, particularly new homes, in reality picks up where the heating unit leaves off, and in addition to heating the air, conditions it for living purposes.

The fact that the modern air conditioning unit is in most cases a complete cabinet in which are enclosed all the conditioning functions, including heating, puts this new development in the hands of the oil companies as a protector of fuel oil gallonage. For today the company that sells the complete air conditioning unit is the one that either gets or controls the fuel oil contract, when the unit includes oil heat.

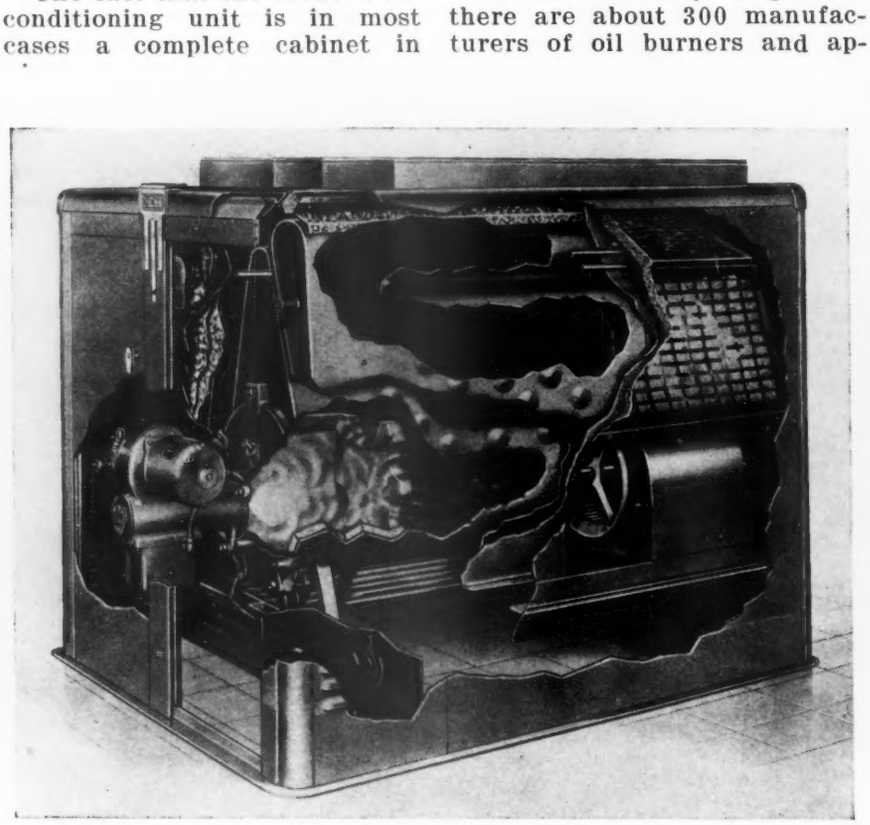
In this country at present there are about 300 manufacturers of oil burners and approximately 85 makers of air conditioning equipment, although the latter figure is increasing continually. Some burner manufacturers make the complete conditioning unit, while others make only the burner and have the remainder of the unit fabricated by another concern to fit their burner furnaces.

As one prominent oil burner maker puts it, his company is in business to sell oil burners and so it sells the complete air conditioning unit, which includes the burner, because that is what the public is coming to demand in new homes.

By the same reasoning the oil company should consider the air conditioning business as a potential market for oil burners, and therefore as a creator of fuel oil business.

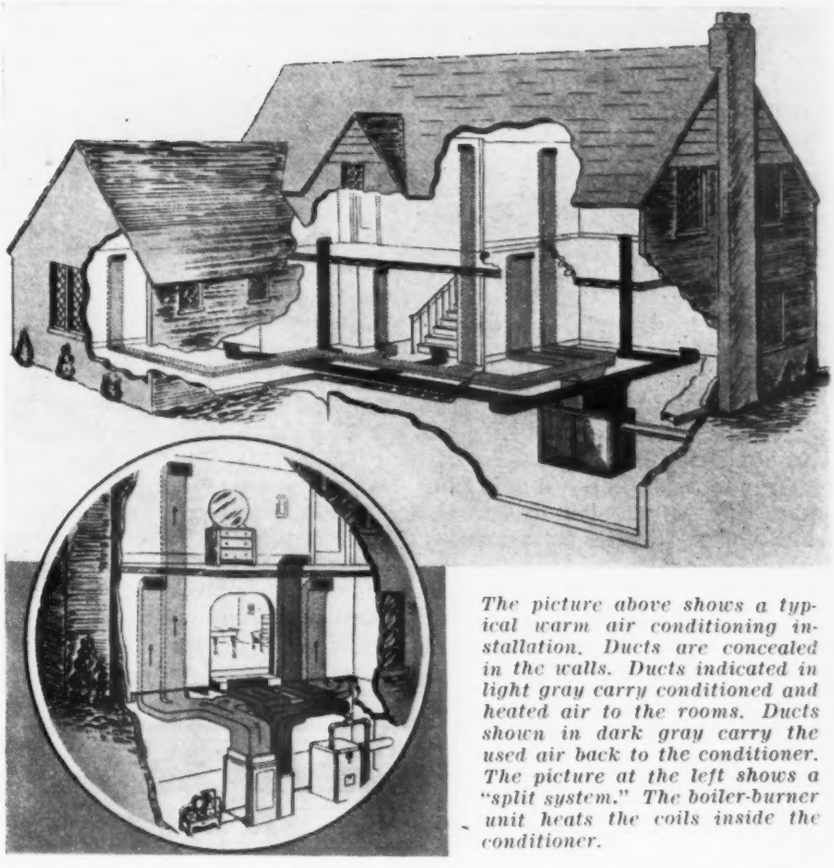
Air conditioning is not new. The simple process of heating the air for living comfort is a type of air conditioning. Those ingenious souls who discovered that, by the assistance of an electric fan at the air inlet of their warm air furnaces, they could increase the circulation and, therefore, the efficiency of their units, were conditioning the air in their homes. Other rudimentary methods of air conditioning included placing pans of water on the tops of radiators to add moisture to the dry heat during the winter, and the placing of fans in the attic windows in summer to pull the warm air out of the lower floors.

The term "air conditioned" has been thoroughly pummeled and mal-treated until today it is one of the most misunderstood phrases in the average American's vocabulary of misinformation. The popular concep-



A cut-away section of a complete oil-fired air conditioning unit, made by Delco-Frigidaire. This unit provides heat, filtration, humidification, and circulation

ANY SELL IPMENT?



The picture above shows a typical warm air conditioning installation. Ducts are concealed in the walls. Ducts indicated in light gray carry conditioned and heated air to the rooms. Ducts shown in dark gray carry the used air back to the conditioner. The picture at the left shows a "split system." The boiler-burner unit heats the coils inside the conditioner.

tion of air conditioning is, of course, that it means air cooling. The summer advertising of stores and theaters who feature "air conditioning" when they mean air cooling, has contributed largely to this misconception.

Cooling is only one function which true air conditioning accomplishes and, in the great majority of homes, a refrigeration unit is not included in the conditioning operation at all, the cooling being accomplished by circulation of the air through blowers.

Modern domestic air conditioning automatically creates a comfortable and healthful atmosphere, in contrast to the usual prevailing conditions in the average home, with dry, over-heated, stagnant air filled with dust, lint, bacteria and plant pollen.

A domestic air conditioning system eliminates those faults by the following means:

(1) Warming the air during the heating season.

(2) Circulating the warm air forced from the heater to all parts of all rooms by a motor-driven blower.

(3) Humidifying the air to the proper moisture content during the heating season.

(4) Cleaning the air, in both the summer and winter through filters which remove the dust, bacteria and pollen.

(5) Continuous circulation of the air throughout the home to maintain a cooler atmosphere in summer.

Proof of the general misconception of the functions of air conditioning is found in the questionnaire sent out to 10,000 persons by the General Electric Air Conditioning Institute. Only 9 per cent were able to name all the functions of modern air conditioning. Most frequently mentioned was that it was a cooling process. For every 100 who specified cooling, only 82 knew that it warms air, 68 knew that it dehumidifies, 65 understood that it humidifies, 46 were aware that it cleans air, and only 40 knew that it circulates air.

There are two general types of complete air conditioning systems. One is the complete unit system, which includes forced warm air heating, circulating, humidifying, cleaning, and circulating all in one unit.

The other, known as the split system, is one in which the heating unit is hot water, vapor, or steam, and the remaining air conditioning functions operate in a separate unit but in conjunction with the heating system.

In recent months the forced warm air type of unit has made rapid strides in recognition, with architects and building contractors as well as with home owners, because of its marked simplicity and general efficiency.

Manufacturers and distributors of air conditioning equipment are generally agreed upon the fact that the most profitable potential market for their equipment is in residences, that is, in new homes. There is a tendency to discount the importance of the replacement, or modernization, market in favor of the more fertile field of new home construction.

BUILDERS report that as high as 85 or 90 per cent of the new homes being erected are equipped with air conditioning, but comparatively few of these, however, are supplied with the cooling or refrigerating units.

Air conditioning of residences as an industry is young, and its record of growth is such as to encourage doubt in the reader's mind as to the accuracy of the figures. Starting practically from scratch in 1931, the business increased 20 per cent in 1932, 30 per cent in 1933, 45 per cent in 1934, and last year went to 60 per cent over the year previous.

Many things point to an encouraging continuation of the market for air conditioning equipment. W. H. Carrier, generally regarded as the father of air conditioning, predicts that people will not become fully educated to its many advantages in their homes before 1941.

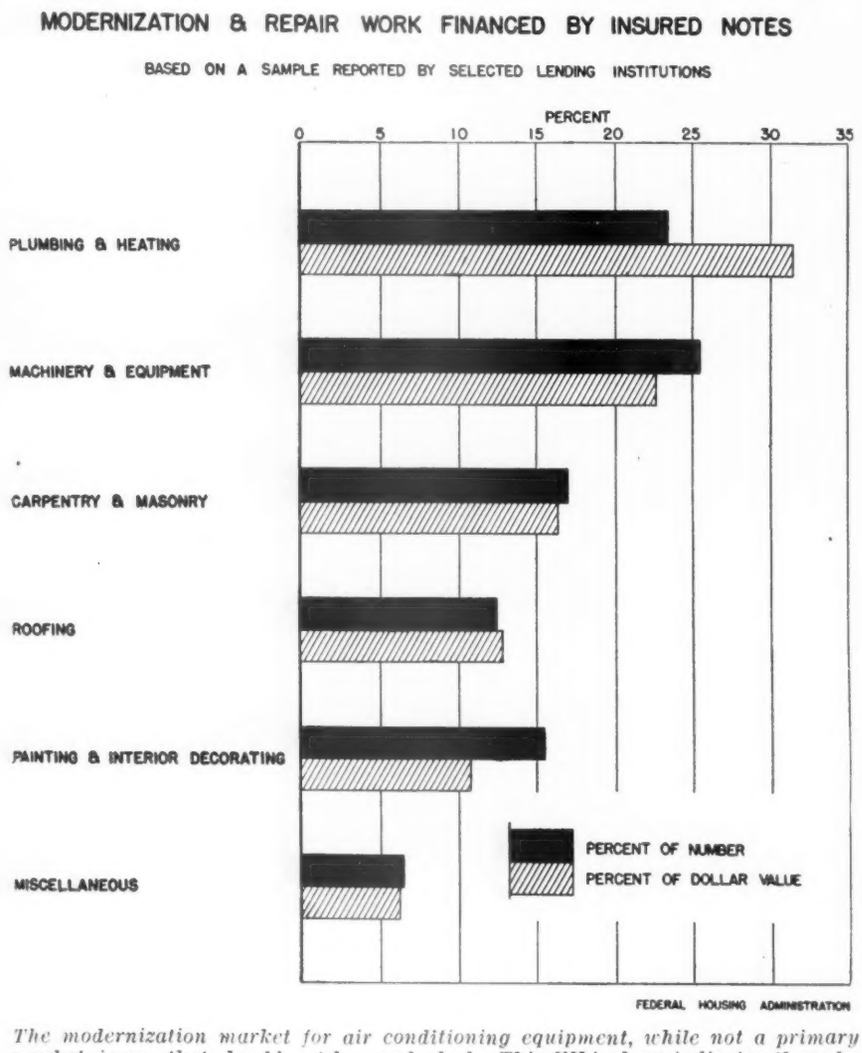
One manufacturer of this equipment, with facilities for authoritative market studies at his command, can see a market of 250,000 new homes for the next five years, two-thirds of which should be prime prospects for conditioning equipment.

By some, $40,000,000 is considered a fair estimate of the 1935 volume of air conditioning business and it is pointed out by reliable authority that the market is less than one per cent saturated.

Residential building is definitely feeling a pick-up and the construction of new homes in 1936 is expected to double that of 1935. The estimated cost of residential building construction for the first half of 1936 is estimated to be 120 per cent above the same period in 1935, with the greatest increase shown in the middle Atlantic states. Washington, Detroit, Los Angeles, and northern New Jersey are experiencing building booms approaching 1928 proportions, according to the Federal Housing Administration.

The National Association of Real Estate Boards, in a recent survey covering 272 cities, found that, in a number, the new residential building cannot keep up with the demand. The survey shows there is an undersupply of single-family dwellings in 76 per cent of the cities reporting, and that only one per cent showed any over-supply.

The FHA shows, in a recent study, that 38.5 per cent of the housing market lies in five states, and therefore these states offer a fertile field for air conditioning equipment. The leading states are California, Illinois, Ohio, Pennsylvania, and New York. An accompanying map shows the relative importance of the states from a residential building standpoint.



The modernization market for air conditioning equipment, while not a primary market, is one that should not be overlooked. This FHA chart indicates the relative volume of different types of remodeling work, based upon jobs financed by insured loans

WHILE the modernization or replacement market for air conditioning is considered a secondary one, it should not be overlooked by oil companies in sizing up sales possibilities in connection with the handling of oil burners. Records of loans insured by the FHA show that, of the money spent for home modernization, approximately 50 per cent was used for plumbing and heating, and for machinery and equipment, and it is into these classifications that air conditioning falls.

The FHA also reports that 75 per cent of the market for modernization equipment is found in less than one-third of the states. The leading states for this type of sale are: California, Illinois, Ohio, Pennsylvania, New York, Texas, Michigan, Missouri, Massachusetts, Oklahoma, Kansas, Iowa, Minnesota, Wisconsin, Indiana, North Carolina, Georgia, and Connecticut.

Fuel oil companies, particularly in the East, were quick to recognize the rapid advance of residential air conditioning installations and what they would mean to future fuel oil business, and as a result many fuel oil companies sell this equipment.

The growth of the domestic air conditioning industry has been a rapid one, and consequently dealers and distributors have been recruited from many fields. There have been no definitely drawn lines of distribution. Some manufacturers are selling direct and doing the installation work, and others are doing the selling but subletting the installation work; some sell through distributors who in turn sell direct and either make their own installations or sub-let them; others sell through distributors who

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GASOLINE
Costs No More than Regular

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GET BEHIND THE RIGHT SLATE

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Every other day, the famous Boy and Slate Sign has a new message for the public—clever, timely, discussion-provoking. People look for them. This sign never grows old.

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EN-AR-CO MOTOR OIL—meets every demand of load and service

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EN-AR-CO SPECIALTIES—National Black Asphaltum Paint, Plastic Roof-Cote, Household Oil, Live Stock Spray, and oils for every purpose.

Write us today for full particulars of the En-ar-co Line and the complete chain of En-ar-co sales building dealer helps.

THE NATIONAL REFINING COMPANY

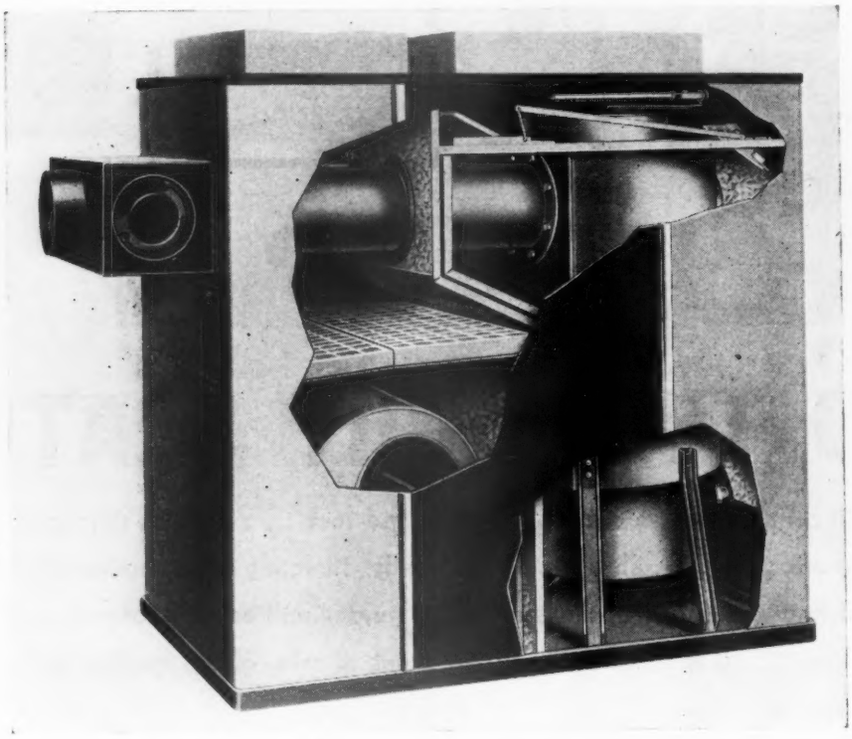
Quality Refining for Over a Half Century

HANNA BUILDING **CLEVELAND, OHIO**

SALES OFFICES

Peoria, Ill.
Springfield, Ill.
Indianapolis, Ind.
Dubuque, Ia.
Sioux City, Ia.
Kalamazoo, Mich.
Mankato, Minn.
Kansas City, Mo.
St. Louis, Mo.
Omaha, Nebr.
Oklahoma City, Okla.
Memphis, Tenn.

Completely enclosed in one unit, this Superfex unit draws in the stale air from the rooms in the house through the top left duct on the cabinet. The air passes through the filters, the blower, and the heating chamber. Then it is forced up past the humidifier and out the duct at the top right, to the rooms



sell to contractors or dealers who make their own installations. In some cases the distribution picture is further complicated by the manufacturer using two or three, or even all, of these different methods of distribution.

In 1934 the Edison Electric Institute obtained from manufacturers of air conditioning equipment the list of types of dealers, and ascertained the percentage of the various types handling this equipment.

Heating and Ventilating Contractors	90%
Plumbers	37%
Public Utilities	37%
Factory Branches	33%
Electrical Specialties	31%
Electrical Contractors	26%
Exclusive Agents	21%
Furnace Dealers	16%
Hardware Dealers	10%
Department Stores	10%
Furniture Stores	5%
Sheet Metal Dealers	5%
Theatre Equipment	5%
Consulting Engineers	5%

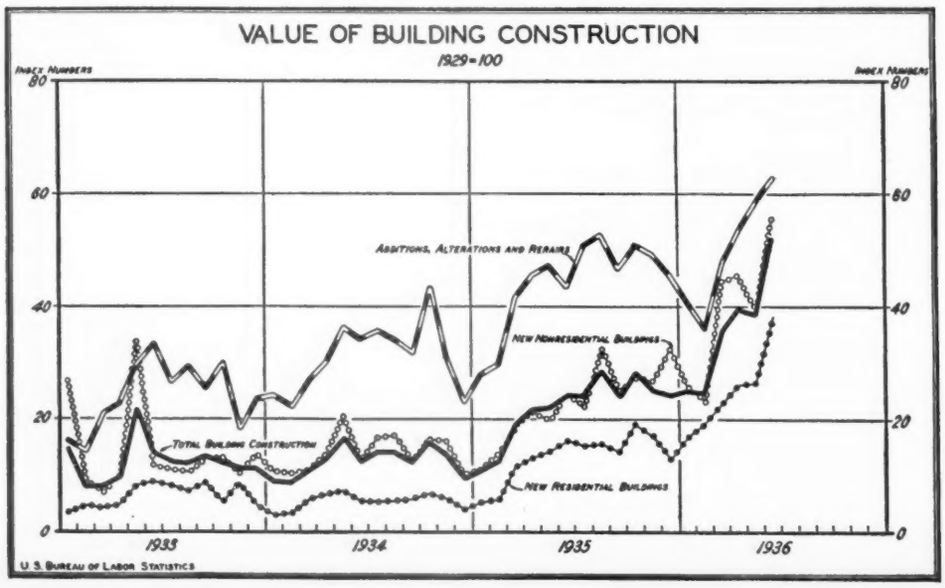
Just as in selling the conversion burner, the company that makes a sale of an oil-fired air conditioning unit is the one that controls the fuel oil contract for that unit. It is to be expected that history will repeat itself in the case of the oil-fired conditioning unit. When oil burners were being sold primarily by oil burner dealers, the oil companies went to these dealers and made deals with them to get the fuel oil contracts on the burners they sold. This condition prevailed until the oil burner dealer found he could make money by going into the fuel oil business and supplying his own burner customers.

It is quite likely that oil companies will attempt to enter into a contract with local air conditioning distributors and dealers to obtain the fuel oil business on new units. It is quite likely also that the air conditioning dealer, as competition grows keener, will find it to his advantage to go into the fuel oil business as a part of his complete heating service. Then, again, the oil company will be without a source of new fuel oil business.

In fact, that situation is happening, noticeably through the east, and should be a hint to the oil company that here again, as in the case of the conversion oil burner, is a situation where the protection of present and future fuel oil gallonage is through the company that sells the oil burning unit.

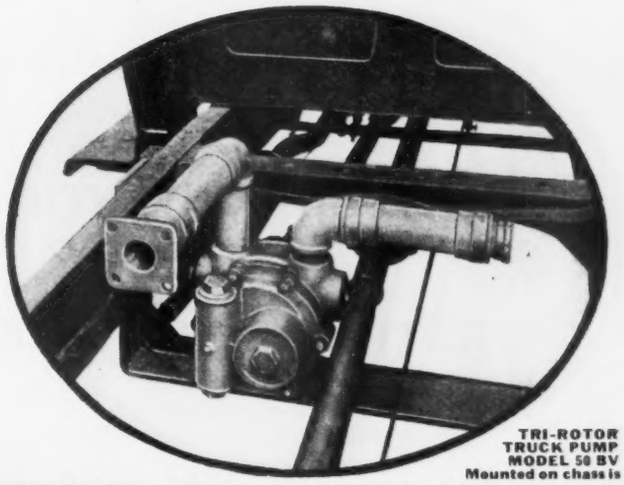
* * *

(This concludes Part I of the story—"Should The Oil Company Sell Air Conditioning Equipment?". Part II will follow in an early issue).



The building construction curve, an excellent basis for estimates of potential air conditioning business, has been taking a healthy rise since early this year, as shown by this chart prepared by the U. S. Bureau of Labor Statistics

VARIABLE VOLUME CONTROL IS AN EXCLUSIVE FEATURE OF TRI-ROTOR PUMPS



TRI-ROTOR TRUCK PUMP MODEL 50 BV Mounted on chassis

10 REASONS WHY LEADING OIL COMPANIES HAVE ADOPTED TRI-ROTOR

- By-pass is eliminated
- Heat generation is eliminated
- Reduces vapor losses in handling volatile liquids
- Excessive pressures are eliminated
- Less power is required
- Constant minimum pressure is maintained
- Does not "shock the line" when starting delivery
- Works better with meters
- Extremely quiet in operation
- 9¾" bearing

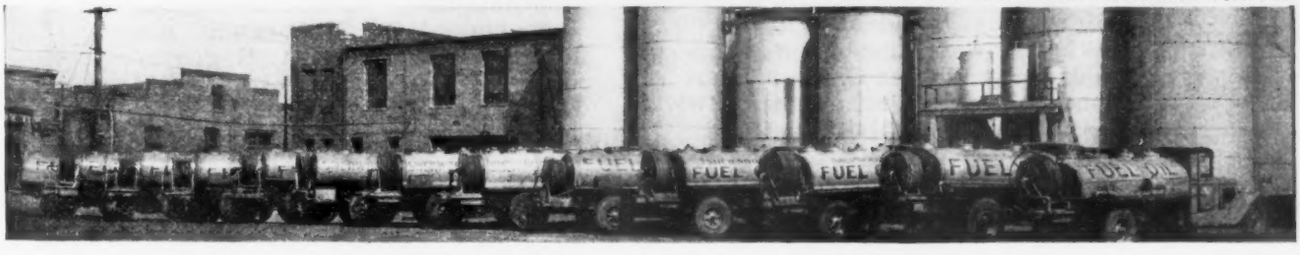
THE Variable Volume principle is exclusive with Tri-Rotor pumps, therefore permits us to make claims of features which cannot be found in any other Rotary and Centrifugal pumps. Our unit does *no pumping when idling* (in other Rotary types this would be called By-passing).

The maximum power load occurs only when pumping full volume and the horsepower drops *50 to 60% when idling.* ■

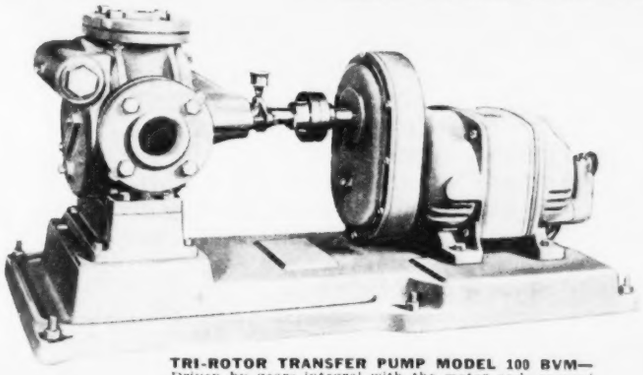
Variable Volume Control *plus* low cost, high efficiency and long life —these are the reasons why leading oil companies are adopting the Tri-Rotor for truck and bulk plant use.

TRADE **YALE** MARK

ABOVE-BUCKLEY & SCOTT, BOSTON AND PROVIDENCE, FORD WARFORD FLEET—TRI-ROTOR EQUIPPED



SHERWOOD BROTHERS, BALTIMORE, MD. FLEET—TRI-ROTOR EQUIPPED



TRI-ROTOR TRANSFER PUMP MODEL 100 BVM— Driven by gears integral with the motor and encased in oil. Capacity 110 G.P.M. at 690 R.P.M.

THE YALE & TOWNE MFG. CO.
STAMFORD, CONN.

Program

for the

ANNUAL CONVENTION AND TRADE EXHIBIT

of the

NATIONAL OIL MARKETERS ASSOCIATION

October 27—29, 1936

TUESDAY, OCT. 27th

M. B. Whiting, Clifton Forge, Va., Presiding.

9:00 A. M.—Registration and Distribution of N. O. M. A. Convention and Trade Exhibit Badges to Independent Oil Jobbers and Exhibitors at N. O. M. A. Registration Desk at Entrance to Exhibition Hall in Hotel Stevens.

9:00 A. M.—Formal Opening of N. O. M. A. Trade Exhibit in Exhibition Hall.

10:30 A. M.—Formal Opening 1936 Annual Convention in Exhibition Hall.
Call to Order by President M. B. Whiting.
Address of Welcome by Hon. Edward J. Kelly, Mayor of Chicago.
Address by President Whiting on "What Price Independence?"
Address by Warren C. Platt, President, NATIONAL PETROLEUM NEWS on "WHAT TOMORROW HOLDS FOR THE JOBBER".
Discussion and Comments from the floor by independent oil jobbers.
Appointment of Convention Committees.
Adjournment for lunch.

2:00 P. M.—Call to Order by President M. B. Whiting.
Address by Harry Curran Wilbur, Managers' Consultant, Chicago on "SOME SINISTER FORCES BEHIND CONSUMER CO-OPERATIVES—A Partial Study of Camouflaged Activities Sapping Foundations of the Republic."

4:00 P. M.—Inspection of Petroleum Exhibit in the Museum of Science and Industry, 57th Street and Lake Michigan, Chicago: Those desiring to see this Exhibit should be at the Museum at 4:00 P. M. where special guides will take you through.

6::00 P. M.—ACQUAINTANCE PARTY in the Exhibition Hall, Stevens Hotel; A surprise and a treat for all.

8:00 P. M.—Closing of N. O. M. A. Trade Exhibit for the day.

WEDNESDAY, OCT. 28th

Roy R. Fisher, Detroit, Presiding.

9:00 A. M.—Registration and Distribution of N. O. M. A. Convention and Trade Exhibit Badges to Independent Oil Jobbers and Exhibitors at N. O. M. A. Registration Desk, Entrance to Exhibt Hall, Hotel Stevens.

9:00 A. M.—N. O. M. A. Trade Exhibit in Exhibition Hall of Hotel Stevens open for inspection.

10:30 A. M.—N. O. M. A. Convention Session Continued in Exhibition Hall of Hotel Stevens.
Call to Order by Vice-President Roy R. Fisher.
Address by Vice-President Roy R. Fisher on "THE INDEPENDENT OIL JOBBERS' NEED OF A NATIONAL ASSOCIATION."
Address by Russell Hardy, Anti-Trust Division, U. S. Department of Justice, Washington, D. C., on

"THE ANTI-TRUST LAWS OF THE UNITED STATES".

Address by Ralph E. Burdick, Duluth, Minn., on "DAMAGE SUITS IN ANTI-TRUST CASES."

Address by Wm. Earle White, Petersburg, Va., on "FOLLOWING THROUGH IN YOUR STATE."

Discussion and Comments from the Floor by independent oil jobbers.

Annual Report of Secretary Paul E. Hadlick.

Report on Nominations for N. O. M. A. Board of Directors by the Nominating Committee.

Election of Board of Directors for ensuing year.

Adjournment for lunch.

2:00 P. M.—Special Session on "The Iowa Plan Of Marketing", Harry Fee, Waterloo, Iowa, Presiding.

Address by Henry E. Wormhoudt, Vice-President, Cushman-Wilson Oil Company, Des Moines, Iowa, on "How The 'Iowa Plan' STARTED". Address by E. L. Barringer, Editorial Staff, NATIONAL PETROLEUM NEWS, on "HOW THE 'IOWA PLAN' CAME INTO GENERAL OPERATION."

Address by Charles Rohr, Log Cabin Oil Company, Mason City, Iowa, on "HOW THE 'IOWA PLAN' IS WORKING OUT IN IOWA".

Discussion and Comments from the Floor by independent oil jobbers.

8:00 P. M.—Closing of N. O. M. A. Trade Exhibit for the day.

THURSDAY, OCT. 29th

M. B. Whiting, Clifton Forge, Virginia, Presiding.

9:00 A. M.—Registration and Distribution of N. O. M. A. Convention and Trade Exhibit Badges to Independent Oil Jobbers and Exhibitors at N. O. M. A. Registration Desk, Entrance to Exhibition Hall, in Hotel Stevens.

9:00 A. M.—N. O. M. A. Trade Exhibit in Exhibit Hall, Hotel Stevens, Open for inspection.

10:30 A. M.—N. O. M. A. Convention Session Continued in Exhibition Hall.

Call to Order by President M. B. Whiting.

Address by G. Denny Moore, Managing Director, Gasoline Pump Manufacturers Association, New York, on "Jobbers Opportunity in Merchandising".

Discussion and comments from the floor by independent oil jobbers.

Address by P. J. Schroeder, Minneapolis, Minn., Chairman, Industrial Code Conference for the Marketing Division of the Petroleum Industry in the Middle Western United States, on "THE DRAFTING OF THE PROPOSED CODE."

Address by W. R. McCain, Springfield, Missouri, on "THE CHICAGO CODE CONFERENCES."

Discussion to determine the attitude of the N. O. M. A. towards the proposed Petroleum Marketing Code and the Appointment of N. O. M. A. representatives to attend the Code Conference to be called by the Federal Trade Commission.

Report of Convention Committees.

Adjournment of 1936 N. O. M. A. Annual Convention.

8:00 P. M.—Final closing of the 1936 N. O. M. A. Trade Exhibit.

NOTE

The TRADE EXHIBIT located on the same floor and as a part of the same hall in which Convention Sessions are held is presented for the education and convenience of independent oil jobbers in the comparing and purchasing of equipment and supplies. All delegates and visitors are urged to inspect every display in this varied and comprehensive TRADE EXHIBIT.

National Oil Marketers' Convention Carries On 27-Year Tradition

By **E. L. BARRINGER**
N. P. N. Staff Writer

CHICAGO PETROLEUM jobbers gathering in Chicago next week for the annual convention of the National Oil Marketers Association will be continuing the 27-year-old tradition of jobbers meeting to discuss common problems, and of pointing to outstanding marketing events through convention deliberations, addresses and resolutions.

No lineal descendants are today's marketers of those 36 jobbers who gathered in Chicago during July, 1909, to form that first organization with 25 charter members. Yet in the national conventions through the years, in spite of changes in name, the passage of old jobbers and rise of new ones, runs the thread of the jobber's contribution to the industry's marketing history.

In reviewing the parade of national conventions and events through the pages of NATIONAL PETROLEUM NEWS three significant periods are evident, showing the problems of the moment with the trials, triumphs and tribulations of the jobber.

The first period covers the jobber from his first national organization into the World war, with its disrupting influence on some basic jobber policies. Through this period, as well as others, were left the marks of battle with refiners, with Standard Oil, and with legislative bodies.

The second period came out of some changes caused by the war and by the rise of the automobile and good roads, culminating in the endeavor to weld jobbers together under a jobber brand. At one time it seemed that a huge merger of individual jobber businesses was in the making.

After this second period had waned there was a lapse in national organization. Interest of all types of marketers was centered on codes, first the voluntary code, then the NRA. Then comes the third and current period, with the National Oil Marketers Association on the eve of another national convention.

Back of that first national association were the beginnings of an independent jobber business that made possible an organization. Jobbers who remember those early years relate how men hesitated to enter the oil business against Standard Oil competition. Capital was difficult to obtain once the man with the money bags learned the loan was for an oil business.

Then in the first decade of the present century more and more men began marketing oil products and in July, 1909, NATIONAL PETROLEUM NEWS, still under six months of age, reported that jobbers were to meet and organize at the Great Northern hotel in Chicago on July 15, 16, and 17.

LOYAL F. ROSS, in the Chicago office of the American Steel Package Co., Defiance, Ohio, was credited with doing the organization work. His aides were Charles H. Moore, Moore Oil Co., Cincinnati, and F. C. Bretsnyder, Bell Oil Co., St. Louis. True to newspaper tradition NATIONAL PETROLEUM NEWS boldly announced that 500 letters had been mailed and 100 jobbers already were pledged to join.

The jobbers did move into Chicago on July 15, 36 strong, and an organization was started. First the name was the National Petroleum Marketers Association. On a motion by E. E. Bromeling, Advance Grease & Chemical Co., Jackson, Mich., the word "independent" was to be inserted and by a 20 to 3 vote the original name was changed to the Independent Petroleum Marketers Association.

The officers of that first association were Thos. L. Hisgen, Four Brothers Independent Oil Co., Springfield, Mass., and Albany, N. Y., president; and

Hectic Days for Jobbers, August, 1914

August, 1914, was one of the most hectic months in the annals of oil marketing. Here is the record.

The World war was declared.

The Allies entered the oil market along the Gulf coast, buying everything in the line of gasoline that refiners could offer.

Then a hurricane swept the Gulf coast, crippling refineries.

The Allies moved inland for gasoline supplies, and filled their orders in Oklahoma.

In the same month the Cushing field started to salt water, scaring jobbers about a source of supply.

Tank car prices advanced 8 and 9 cents in short order, and tank car prices in Oklahoma shot above the tank wagon price in Chicago.

One jobber remembers buying a tank car of Pennsylvania gasoline at 6 cents. Shipment had been delayed for a few days. When the car arrived a week later the tank car market was 12 cents.

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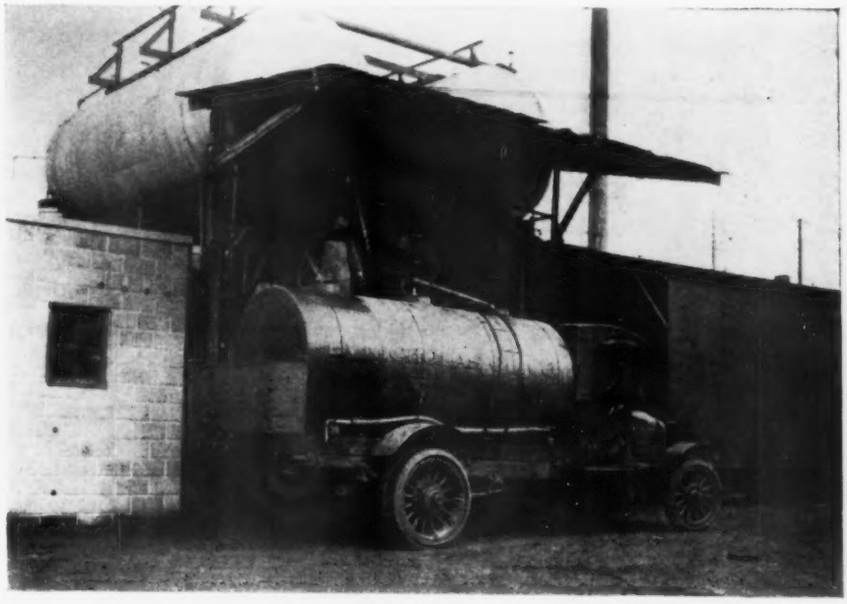
Warren C. Platt, publisher of NATIONAL PETROLEUM NEWS, secretary. The convention unanimously endorsed Mr. Platt's new publication.

During the first years jobbers held several other meetings. One was at Niagara Falls, Canada, Oct. 16 and 17, 1909, the other in Minneapolis, Jan. 28 and 29, 1910. Action at these meetings may logically be grouped together in arriving at the early deliberation that forecast the dominant jobber trend in marketing for many years to come.

Loading rack at the bulk plant of the L. V. Nicholas Oil Co., Omaha, Nebr. This scene took place back in 1921



JOBBERS united with refiners, in the National Petroleum Association for a national legislative campaign, working with the National Civic Federation. The program called for anti-discrimination laws, for anti-disclosure laws, and for the end of wasteful inspection and for uniform inspection laws.

Anti-discrimination laws were a fighting issue with jobbers in those formative years. Numerous NATIONAL PETROLEUM NEWS articles indicated efforts by jobbers for such a state law. Tank wagon kerosine prices were not uniform in those days and there is some evidence to think prices were arrived at without much regard to any formulae.

NATIONAL PETROLEUM NEWS, however, endeavored to collect tank wagon prices and in the September, 1909, issue began publishing such a price table. There were two columns in this price table. One was for prices "where there is competition." The other listed cities "where there is NO competition." Through this service jobbers throughout the country kept informed of prices outside their own territory.

Various states have local anti-discrimination history to relate, but there were two notable national events in this issue. One was the case under the North Carolina law against Standard Oil in police court at Raleigh.

NATIONAL PETROLEUM NEWS issue for January, 1911, carried a detailed account of the trial. Charges were that Standard Oil reduced kerosine prices in Raleigh, below that for other cities in the state, in January, 1910, when competition developed through Indian Refining Co. entered the market. The next month's issue reported that Standard Oil won its case.

The other national event came shortly after the outbreak of the World war. Crude had advanced 10 cents. Tank wagon prices in the middle west had been cut 1 cent. Jobbers, thoroughly aroused, held a meeting in Chicago and raised a sizable war chest to publicize their cause. Then they took their complaint to the Federal Trade Commission in Washington.

One of the features back of the complaint, as developed in the hearings, was the changing tank wagon price structure. A price basis for the territory was taking shape, with prices varied by tenths of a cent to compensate for freight rate differences, much as they vary today. Jobbers, however, marketing over a wide territory would cut across several different price territories as they did not know the line where the company had set the tenth of a cent difference.

Standard Oil officials charged they had a ton of evidence showing jobbers cutting prices. When the evidence was produced in Washington it amounted to considerably less than a ton. The commission checked the evidence (price tickets) and found in most cases the cuts amounted to a fraction of a cent, indicative that apparently a jobber had one price that he applied to his whole territory that might cut across several price zones of Standard Oil.

The upshot was that tank wagon was raised 1.5 cents. One cent was to restore the cut. The half-cent compensated for the crude advance. Jobbers withdrew their complaint, but the commission continued to make a finding.

Inspection Laws Were Issue

Oil inspection laws which were an issue with jobbers back in 1909 are still somewhat of an issue with jobbers today. Originally inspection laws were to prevent gasoline from being mixed into kerosine. Kerosine then was the main oil product for stoves and lamps, and gasoline was an unwanted product.

The nub of the jobber's complaint was the lack of well established inspection specifications and high inspection fees. High fees charged in the old days are evident from an article in the February, 1910, issue reporting that Oklahoma was considering a schedule on kerosine, based on 50-gallon

An early day bulk plant of the Illinois Independent Oil Co., Lincoln, Ill. Tank wagons were filled by hand pump

barrels, of 70 cents a barrel when the produce was in barrels, 40 cents a barrel when in tank cars, and 10 cents a barrel at refineries.

Much of the inspection law criticism has been silenced now with fees much lower. Jobbers still complain about paying for gasoline and kerosine inspection, but the rate now is only a few cents per barrel.

Anti-disclosure was another vital issue back at that 1909 series of meetings, and jobbers actively sought state laws to prevent railroads from disclosing to competitors the source of the supply. Stories about charges of unfair competition bob up in NATIONAL PETROLEUM NEWS' early issues, but resolutions about anti-disclosure laws did not come before convention after the first meetings.

The intense feeling between jobbers and Standard Oil is evident from the large number of articles in NATIONAL PETROLEUM NEWS relating raids on the jobber's business. The Waters-Pierce company, with its ousting from the state of Texas, and its tactics around St. Louis, received considerable attention.

The Crystal Oil Case

Outstanding in this battle between jobbers and Standard Oil was the famous Crystal Oil Co. case in which a jobber recovered triple damages, and the case was reported fully in NATIONAL PETROLEUM NEWS. The issue of June, 1910, carried the complete account. Then in the following month the legal side of the case was reviewed in an article by Frank S. Dunshee, identified above the story as the "attorney who won the first damage case against the Standard Oil."

Evidence showed that Crystal Oil, a Des Moines jobber, peacefully went about its business during the 1890s buying kerosine from Standard Oil and delivering it to consumers around town. Crystal Oil wanted 0.5 cent more margin (maybe the first "more margin" plea) and when Standard Oil refused Crystal began buying from the Paragon Refining Co. depot just established in Des Moines.

Crystal charged that Standard Oil put a "dummy" company in Des Moines to raid its business in a six-weeks' intensive campaign. Charges were made that drivers for this "dummy" company told consumers they were independent operators. This price war came in 1898. Crystal sold its business, valued at $15,000, to an attorney named C. L. Nourse for $2100 cash. Nourse turned the business over to Standard Oil. While the $2100 paid Crystal's debts, nothing was left for stockholders.

CRYSTAL filed its suit May 12, 1900, asking $50,000 damages. The petition was thrown out on a demurrer. Then Iowa in 1904 enacted an anti-discrimination law. Crystal renewed its suit and the decree was handed down May 16, 1910.

The court held that Standard Oil had interfered with contracts between Crystal Oil and its customers, the contract being the card hung in the window when a customer wanted the Crystal tank wagon to stop with kerosine. Crystal claimed a monthly kerosine business of 20,000 to 25,000 gallons, and that its only competitors had been 160 grocery and 40 drugs stores in Des Moines selling Standard Oil kerosine. The award from Standard Oil was $6120, plus interest at 6 per cent for the ten previous years.

Other issues, as the auctioneer says "too numerous to mention" came before jobbers, but a sketch of annual convention reveals jobber marketing events.

The 1910 convention at Louisville commended the Crystal Oil Co. suit. Refiners and supply men were admitted to membership. Proposed freight rate advances were condemned. Granting of a federal charter by congress to the Rockefeller Foundation was condemned as set-

Nothing New Under the Sun

A great many of the issues and problems that the oil industry, the marketing branch particularly, is encountering today figured in the news columns of 15 to 25 years ago, a study of the early issues of NATIONAL PETROLEUM NEWS shows. Here are a few headings that appeared in its issues of more than 20 years ago:

The tariff against Mexican crude	May, 1909
Minnesota's attorney-general tries to ban colored kerosine	June, 1909
Refiners marketing direct, a threat to jobber markets	Sept., 1909
How Milwaukee jobber cut evaporation loss	Sept., 1909
First alcohol-gasoline survey report	Nov., 1909
Standard Oil charged reverting to manufacturing only	July, 1909
"Telegraph Your Congressman" on legislation	May, 1909
State control of gasoline prices	Dec., 1913
Crude supply to be exhausted in 27 years	Feb., 1909

ting up a new way for Standard Oil manipulations. Georgia was urged to enact an anti-discrimination law.

Jobbers at the 1911 convention in St. Louis asked the bureau of explosives to investigate and regulate natural gas gasoline shipments. The battle of wooden vs. metal barrels was on. Jobbers agreed to use steel or iron drums within two years, providing carriers granted a freight rate one class lower than on wooden barrels.

APPARENTLY jobbers enjoyed themselves aside from the sumptuous banquets. After one of the sessions at St. Louis, Secretary Platt announced street cars were waiting to take visitors on a sightseeing tour, including some big breweries.

At Minneapolis in 1912, Secretary Platt proudly announced a $750 cash balance. Jobbers talked about a model storage ordinance. A report was received on establishing terms and allowances in the oil trade. Jobbers talked about a collection agency (to be established later as one of the outstanding association activities of the period). Jobbers also talked about means of arbitration between refiners and jobbers.

In 1913 at Cleveland a committee was authorized to proceed with an arbitration board. Uniform tests were approved. A blanket insurance policy on accident cases was considered. Jobbers urged scientific methods in seeking crude oil.

At Chicago in 1914 the credit and collection department of the association was authorized and Secretary Platt's office swung into action. A central testing laboratory was proposed. The consideration of some common trade mark for the first time came before the association. The suggestion was for members to obtain consumer advertising material through the association. The cause of independence was to be proclaimed with a red "I" insignia. Jobbers began investigating possibilities of registering a master trade-mark.

In 1915 at Milwaukee the association's name was changed to the Independent Oil Men's Association. The association was incorporated and the flat $10 assessment was eliminated. New dues were based on dollar volume, starting at 25 cents per $1000 up to $200,000 annual sales and a top of 1 cent per $1000 over $1,000,000 sales. Minimum dues were $25, maximum $100. Jobbers wanted a uniform notice on returning of drums, with a charge to be made if drums were not returned in 30 days.

Secretary Platt at this convention was re-elected. He resigned, but agreed to continue the work until a successor was selected. The new secretary was E. E. Grant, and association offices were set up at 110 S. Dearborn St., Chicago. Mr. Grant had been a refiner in Canada, then in charge of the Chicago office of the Riverside Oil Co., before joining the association.

At the 1916 convention in Chicago the sessions for the first time were departmentalized, and quality was the keynote of merchandising talks. Directors were asked to press for uniform inspection laws. A committee was recommended by directors to develop devices for using kerosine as motor fuel for automobiles. Sentiment was evident that jobbers did not favor the government setting gasoline specifications. This point will be taken up later, as the dominant transition issue between the first and second jobber periods.

M. B. Whiting

M. B. Whiting Oil Co., Clifton Forge, Va., elected as president of N.O.M.A. at 1935 convention

The 1917 convention was also in Chicago. Blending losses and evaporation were discussed. Jobbers were urged to remember they were selling "service", and were urged to know their costs. H. L. Doherty, Cities Service Co., was a speaker saying the industry "must be stabilized" and clubable. By clubable he meant the weeding out of oil men who wanted to cash in on their nuisance value.

The 1918 convention in New York apparently was not up to standard. It was just a month before the Armistice, and the Spanish Flu epidemic had led to rumors that the convention would be called off, but 300 registered. Jobbers were critical of eastern refiners for not taking care of jobbers during the war. And the I. O. M. A. was merged with the American Petroleum League, the original name continuing.

Jobbers Subscribe to Liberty Loan

In spite of war handicaps jobbers dug down in their pockets one night and took $250,000 in bonds of the Fourth Liberty Loan off the market. Also, encouraging were the reports that gasolineless Sundays had saved 25,000,000 gallons to provide necessary fuel for the Allies.

The World war had a profound effect on oil marketing, just as it did on business in general. In searching through NATIONAL PETROLEUM NEWS files it is evident that the war, plus some developments a few years later, paved the way for a new type of jobber set-up, and the rise of the Red Hat movement in the 1920s.

Contributions of the war period were the standardization of gasoline specifications and what seem to be permanently higher freight rates. The increased number of automobiles manufactured and the good roads movement after the war

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played their part in the transition of marketing.

Prior to the World War the jobber's business was considerably different that it was beginning in the 1920s. The older jobber marketed over a wide area. Kerosine was the principal product, then gasoline began coming to the front. Products would be received at a bulk plant, barreled there and shipped to distributing depots.

One large Iowa jobber, for example, operated in over 200 towns. In these towns the jobber erected a sheet iron depot. Kerosine in drums was shipped all over the state, at an intrastate rate of about 1 cent a gallon, to these depots. Some local boy was hired as the agent, and he peddled the products from the depot to consumers.

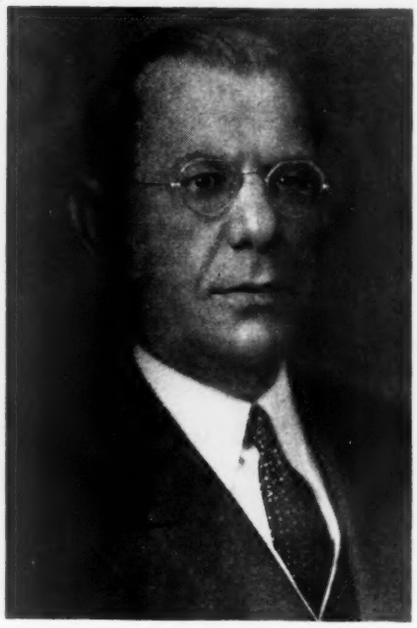
Gravity a Sales Point

The jobber's outstanding sales point on gasoline was gravity. In fact, Wisconsin enacted a law requiring gravity posting on the service station gasoline pumps. Even today, pumps in Wisconsin bear a small metal label showing the gravity.

Jobbers had been brought up marketing high gravity products from the Pennsylvania field. As the discovery of oil spread westward across Ohio, Indiana, Illinois and into the Mid-Continent the gravity of refined products d r o p p e d progressively. While the competition was handling lower gravity western oils the jobbers continued to push high gravity, charging a premium of 3 to 5 or more cents. Freight rates were much lower in those days, and the rate from Oil City to Chicago and Milwaukee was about 1 cent a gallon.

Jobbers continued merrily on their way, selling gasoline at a premium, seeking business in the quality market. Convention speakers also urged "quality merchandise." In those days garages were not heated in winter, and automobile engines were considerably different than today, so quality had its following.

Competition over gasoline gravity became so heated in the fall of 1916 Standard Oil advertised against gravity. The September, 1916, issue had a lead story about Standard Oil advertising in Milwaukee newspapers, and the ad was reproduced, pointing out that Red Crown was as fine as any gasoline on the market and that Milwaukee motorists were being bilked out of thousands of dollars annually buying premium gasoline. Milwaukee jobbers posted a price 4.4 cents above Standard Oil.



Ray R. Fisher
Vice-president of N.O.M.A. Argo Oil Corp., Detroit, Mich.

The World War, however, was the beginning of the end of the gravity specifications. At the 1916 convention jobbers made known their dislike of the government establishing specifications, but some standard had to be set up during the war so the government could get uniform motor fuel regardless of the crude run through the refinery.

The Navy department, Bureau of Mines, and the oil industry co-operated in writing specifications. Gravity declined as the dominant specification, the distillation curve was considered most essential in determining gasoline grades. That was the beginning of "New Navy" gasoline, the forefather of U. S. Motor gasoline. Anti-knock was some five years in the future.

Refiners and jobbers learned one lesson out of an interesting war experience. General Pershing had cabled back for a better grade of aviation gasoline. German planes could outclimb those of the Allies, giving them a tremendous advantage. American oil men asked for a sample of German gasoline from the first plane brought down intact. Analysis of that sample showed an end point under 300.

German oil men had learned the trick. Ordinary grade gasoline was redistilled. A light fraction at the top was taken off, yielding a low end point gasoline. American oil men learned the lesson from that sample, and soon supplied a comparable fuel for planes of the Allies. Some jobbers also adopted the practice. Stills were built at bulk plants. The top cut was taken off, producing a gasoline with an end point around 375, the remainder was marketed as napatha.

So out of the war came specification gasoline, and a more scientific approach to producing a motor fuel to fit the automobile engine. In a few years anti-knock through cracking, and the addition of benzol and ethyl fluid, were to be factors in determining quality.

THE rise of automobile sales after the war, along with engine improvements, left their mark on the jobber. Automobile Facts And Figures shows only four passenger cars register in 1895. Registration broke over the 1,000,000 mark in 1913, over 2,000,000 in 1915, over 10,000,000 in 1922. Gasoline consumption rose sharply, service stations became more important outlets, and the number of jobbers after the motorist's oil dollars began to rise.

Equally important was the good roads movement after the war. Cities and states were brought closer together, and motorists could drive their cars all year. Jacking up the car for winter storage was ended.

Good roads, with more and better automobiles, in the early 1920's brought the jobber closer together also. In the old kerosine days jobbers had common interests in legislative matters, freight rates, and prices. Yet on straight marketing problems each operated in his own community. The customer was fixed.

DELMAR-DB PUMP HOSE!

Developed slowly by Hose Specialists . . . made "right" . . . thoroughly proved before it was put on the market

THAT'S WHY DELMAR-DB (DuPrene*-base lined) HOSE IS RELIABLE!

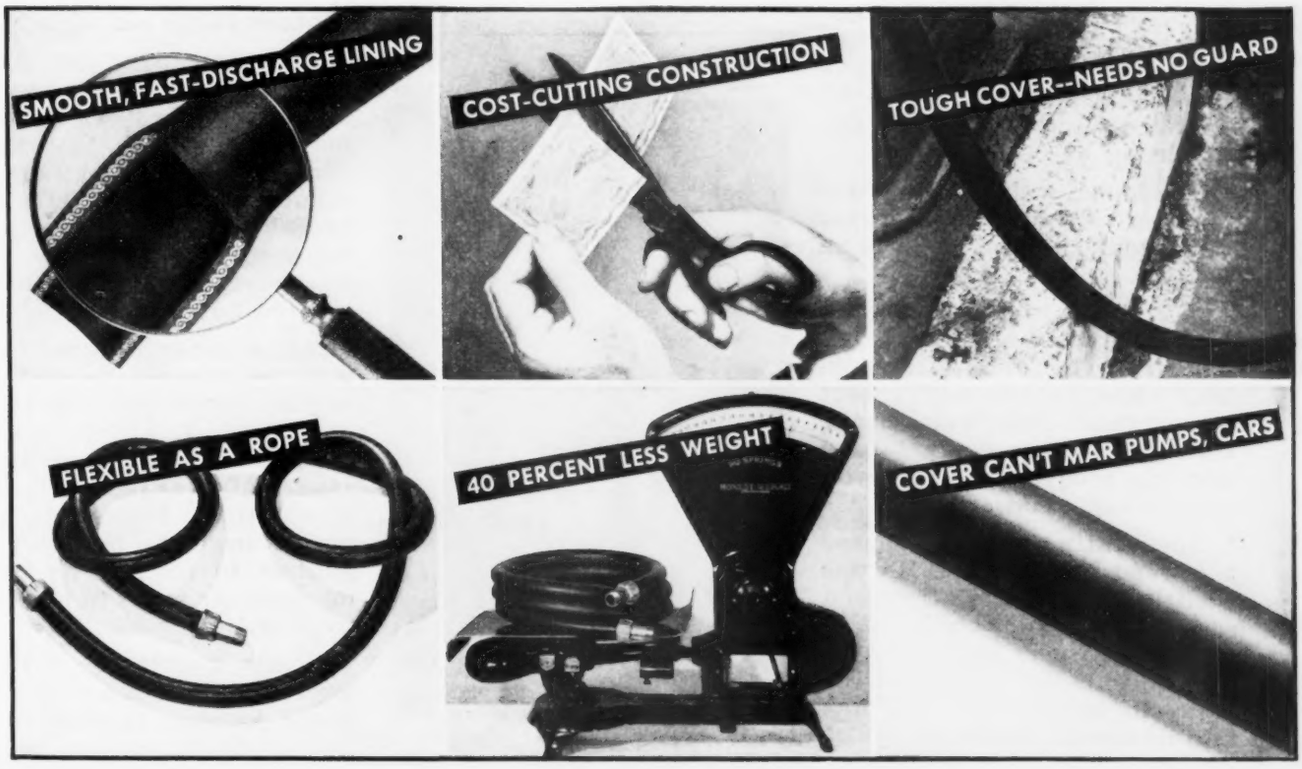
TO you DELMAR-DB may be new, but to a group of hose experts in the Electric Hose & Rubber Co. plant it is over three years old. These men "lived with it" for many months before it even looked like hose . . . when it was just a mass of ingredients, one of which was DuPrene*. Under ideal conditions, unhampered by precedent, without competition to hurry them, these men experimented and discarded formulas until they hit-upon the perfect DuPrene*-base compound for the service . . . a compound which is a valuable secret today.

The job of perfecting a carcass construction as enduring as the gasoline-proof lining was carried through in the same painstaking manner. Laboratory tests followed. Then, came over two years of testing in actual service on busy pumps to show-up any faults that needed correction.

Considering its background . . . the way it was developed . . . the way it was time-proved before it was offered for sale . . . there is no reason why DELMAR D-B should be anything but completely reliable today. Coupled with the remarkable facts presented in the opposite page, it is evident that *there's no gamble in accepting the economy and efficiency which this revolutionary pump hose offers.* Any buyer or user of hose can safely have the remarkable advantages pictured below.

ELECTRIC HOSE & RUBBER CO.
WILMINGTON DELAWARE

*"Du-Prene"—Registered trade mark of DuPont



DELMAR-DB . . . A PRODUCT OF ELECTRIC HOSE & RUBBER CO.

The automobile and good roads made the motorist, the industry's prize customer, mobile. As inter-city traffic increased the home town customer of one jobber became the potential transient customer of the jobber in the neighboring town. Quite clearly, the advantage lay in brands, especially for the integrated company offering the motorist the same trade marked product over a wide territory.

Mergers Become Common

The day of mergers was at hand also. No longer was the alignment to be the integrated Standard Oil against the field of the independent producer, the independent refiner, and the independent jobber. Out of the ranks of independents came vertical mergers, increasing the number of integrated companies. Jobbers were entering the period of operating against a number of integrated companies, one of which continued to be Standard Oil.

One merger, for example, included six marketing organizations. This was the formation of the Transcontinental Oil Co., Pittsburgh, reported in the Sept. 3, 1919, issue of NATIONAL PETROLEUM NEWS. Marketing companies listed in the merger were the Riverside Eastern Oil Co., Riverside Western Oil Co., Riverside Oil Co. of Illinois, Gasoline Distributing Co., Texas Oil & Gas Co., and the Tex-Penn Oil Co.

The issue for the week following also touched on the merger trend, with this statement in an editorial:

"The trend of the times is for large operating units in the oil industry. The exclusively jobbing concerns are taking part in reorganizations which make them part of a refining — and perhaps producing — as well as marketing concern."

Apparently the jobber sensed the trend of the times. He was realizing the effects of war on specifications, of good roads, and the mergers with the rise of brands, as the history of the national association marched into its second period.

Against this general background of causes that guided the trend in jobbing, the course of action taken in conventions reveals the details of this second period of national associations. One saddening note, though, was the toll that inevitably had to be taken in the ranks of old time jobbers.

Death was nicking into the jobber ranks, removing some of the older men who struggled through those early days of jobber independence and whose names were so highly respected in their home communities and in oil marketing.

Mergers also were removing jobbers, especially larger organizations. Some jobbers were presented with a golden opportunity to financially benefit from years of building through selling-out. Some jobbers found the seeking of an adequate source of supply for rapidly mounting gasoline gallonage a serious problem, solved by an alliance with an integrated company.

Some jobbers were the victims of the glaring weakness of a small business organization, which is the strength of large corporations — lack of capable youngsters coming up through the ranks to relieve older men, to provide new blood, and to keep the organization in tune with changing business conditions. And, unfortunately, some jobbers were victims of their own business mistakes.

Paul E. Hadlick
Secretary of N.O.M.A., Washington D. C.

Surprisingly enough, however, a number of jobbers who battled for business twenty or more years ago are still active in the management of their company.

To compensate for the thinning ranks of old timers there was the rise of the newer, but smaller jobber. Some of the newer jobbers, of fifteen or more years, have built businesses quite large compared to small jobbers, but the bulk of new jobbers operate in a small territory.

IN THE old days, a jobber operated far and wide, at least over a good portion of a state and across state lines. The number of jobbers in some states, though, could be counted on the fingers of one hand. The jobber industry today can muster some members in interstate business, others covering a good portion of a state, but most jobbers are in one city or county. Against a hand full of jobbers in a state years ago, today there are hundreds, and the smallest number in the midwestern states, traditional home of the jobber, is about 450 in one state.

The early post war conventions, as traced in NATIONAL PETROLEUM NEWS files, transacted but little business. In 1919 jobbers again met in Chicago. The country was divided into three zones, with one vice-president for each zone, and the board was increased by two members to a total of eight.

Major-General Leonard Wood was the banquet speaker. Guy Sweney, Bartles-Sweney Oil Co., Peoria, Ill., talked on the need for a "code of ethics." Sweney apparently was ten years ahead of his time. Jobbers took action to urge the bureau of explosives to rescind its orders for tank car racks to be 80 feet from railroad main lines.

Members of the U. S. Oil Inspectors Association were guests of the jobbers. The gist of this joint gathering was the oil men telling inspectors politely, be-

Fifteen 800-gallon Tanks built of Alcoa Aluminum Alloys, by Standard Steel Works, Kansas City, Mo., for Shell Petroleum Co., St. Louis.

ALCOA

Every truck in this fleet carries 33⅓% extra payload, or exactly 200 gallons, because it is built light, of Alcoa Aluminum.

That increased load costs nothing to carry. It is Bonus Load, the extra payload substituted for dead weight when Alcoa Aluminum replaces heavier construction materials. Since it adds nothing to gross weight, it adds absolutely nothing to the cost of fuel, oil, tires, etc. In haulage it costs zero; on the books it is pure saving. The economy soon pays for the more efficient body, and afterward may be credited as pure profit.

Building with Alcoa Aluminum has other advantages as well. Since Aluminum is naturally resistant to corrosion, it requires less frequent painting, and less frequent flushing-out.

You will want to investigate these economies before you purchase another truck. If your body builder can't give you full information concerning the cost-saving shapes and forms of Alcoa Aluminum ready for his use, write to us. We will gladly give individual problems of design and fabrication close attention, and we will also see that you get a copy of the comprehensive handbook, "*Alcoa Aluminum for Truck Bodies.*" ALUMINUM COMPANY OF AMERICA, 2190 Gulf Building, Pittsburgh, Pennsylvania.

ALCOA ALUMINUM

cause the inspectors were guests, that they served no function for the public.

California Marketers Attend

The 1920 convention assembled in Denver, and for the first time California marketers came to the meeting. It was the first time also that oil shale came before jobbers, and the convention report in NATIONAL PETROLEUM NEWS strongly infers this was an error as the oil shale people were primarily promoters.

The convention report listed adoption of a proposed code of fair trade ethics, introduced by a joint committee of the Standard Oil Co. of Indiana and jobbers. Uniform rules were considered governing relations between jobbers and refiners. Main issues were to have an understanding on orders on color, gravity and the size of the tank car.

The rise of the Red Hat movement came in the 1921 convention, also in Chicago, with the new National Petroleum Marketers Association coming from the merger of the Independent Oil Men's Association and the American Independent Petroleum Association, and the beginnings of Nicholas regime.

L. V. Nicholas, Nicholas Oil Co., Omaha, was president of the American association, and was elected president of the new NPMA. Mr. Grant, secretary of IOMA, was secretary of the new association. John D. Reynolds, secretary of the old AIPA, was counsel for the new association.

Business was a small part of the convention, the outstanding action was in minor amendments to the jobber-refiners uniform rules, and the jobbers in a resolution recognized the legitimate broker.

The new "vehicle" tax, then at the insignificant rate of 1 cent a gallon, was discussed. The president of an oil burner company spoke on kerosine as a fuel for heating homes with the rise of domestic heating.

Again in 1922 jobbers assembled in Chicago, and accepted a national advertising campaign on "independent oil," with a red eagle insignia on

Charles Rohr
Log Cabin Oil Co., Mason City, Iowa, one of the speakers on the "Iowa Plan"

pumps. Jobbers also pledged themselves to buy as far as possible only from refiners beyond Standard Oil control or influence. Jobbers approved a paid president, and Nicholas continued in office.

Another notable event of this convention was the discussion by S. S. Cramer, president of Wadhams Oil Co., Milwaukee, on how his company bought "New Navy" gasoline, and ran it through a still to get a 61 gravity, 370 end point product at a cost 1.5 cents above "New Navy." The point back of this practice was explained earlier in the rise of specifications during the World war.

Another event touched on a problem still present with jobbers in southeastern states — high freight rates making purchases from Mid-Continent refiners prohibitive. R. N. Reed, Reed Oil Co., Atlanta, spoke on freight rates preventing jobbers from buying from independent refiners.

The national advertising campaign accepted at this convention had come before a jobber meeting in Kansas City during March of 1922. Plans formulated at this meeting called for such a campaign through a new organization, the Independent Oil Men of America, when support was obtained from 200 jobbers.

The 1923 convention was in Milwaukee, and the report does not contain much on the new national campaign. The retail price structure was under fire, however, and charges were hurled that in the past eighteen months Standard Oil is being more interested in protecting the crude market had affronted the public with its high retail prices.

Days of Long Margins

Those were the days of the exceptionally long margin and while jobbers talked of reducing retail prices there was no general movement in this direction from jobbers. The historic 6.6 cent reduction of 1924, when South Dakota entered the oil marketing business, was in the making.

Marginal contracts also were mixed up in the price discussion. C. S. Rosenthal, Apex Motor Fuel Co., Chicago, was reported as defending Standard Oil retail prices as "average fair markets" so refiners could base marginal contracts.

H. C. Wurster, secretary, Hawkeye Oil Co., Waterloo, Iowa, explained the jobber coupon exchange system.

An amusing discussion was reported at this convention, in the light of later developments. To prevent embarrassment, names will be overlooked. The discussion was on whether service stations should contain rest rooms. An executive for one large jobber company flatly told the convention that his company did not believe in building rest rooms. Service stations, he related, were being built to get the most number of cars under the roof, and rest rooms just wasted space. (This company today has grade A rest rooms in stations.)

At Cleveland in 1924 a meeting of 150 Red Hat jobbers was held the day before the National Petroleum Marketer's Association convention. At the main convention trustees of the Independent Oil Men of America reported they hoped to start the national advertising campaign by "next spring."

NPMA jobbers referred to the

NAPHTHAS **FUEL OILS**

DIESEL OIL **KEROSENE**

GASOLINE **INDUSTRIAL**

AUTOMOBILE LUBRICANTS

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board the question of an oil exchange, and authorized the board to investigate possibilities of a collective gasoline buying agency and to establish such an agency if deemed advisable.

President Nicholas proposed a form of jobber contract — a 3-cent minimum margin with a 50-50 split when the margin was above 4.5 cents. No action was taken by the association on the proposal.

Making History at Louisville

The 1925 convention in Louisville made history by the multitude of accomplishments.

Directors decided to establish a department of industrial lubrication engineering.

A resolution was adopted favoring a retail and tank wagon market for gasoline based on the spot market.

A resolution was adopted for lower tank car prices to petroleum distributors than to casual buyers such as industrial accounts.

The possibilities of group liability insurance was to be investigated.

A vote of confidence was given the committee investigating possibilities of a jobber owned cracking plant. A committee had reported results of a preliminary survey by a New York engineering firm, and was talking about plants at St. Louis and near Tulsa.

Co-operative buying over the past year was reported as successful. F. H. Emig, head of the buying department, related that he could not serve all jobbers on account of geographic location. Some jobbers, however, were buying a tank car a month, some others 10 to 15 cars.

The jobbers heard and approved advertising plans of the Independent Oil Men of America for 1926.

At the 1926 convention in Atlantic City the IOMA public relations man reported that Red Eagle signs, insignia of IOMA jobbers, was flying in 4000 towns.

An address bearing on the main gasoline specifications problem of the day was given by Dr. G. G. Brown, University of Michigan, who told jobbers that natural gasoline had anti-knock value, and would give jobbers an opportunity to compete with Standard Oil.

In the background of the subject of this address was the search by midwestern jobbers and refiners for a motor fuel to compete with Ethyl in anti-knock qualities on account of the long term exclusive contract of the Standard of Indiana.

The issue had its roots back in the beginning of cracking, to produce more motor fuel from a barrel of crude, and in the July, 1913, issue there was a story about a "new refining process" that will convert three-fourths of crude into gasoline. In the technical division of the industry the Burton process of the Indiana Standard and its product, "Motor Spirits," was a lively topic.

Ethyl Enters

Ethyl fluid came into the marketing scene in the early 1920's, then was withdrawn. Regulations for mixing ethyl fluid at refineries were promulgated and Ethyl gasoline returned in 1926. In those days Ethyl gasoline was a premium motor fuel, 3 cents above what would now be termed "regular," and a high anti-knock gasoline market was being created by the trend towards high compression engines. Ethyl fluid in "regular" gasoline came years later.

In the shuffle over ethyl, the Indiana Standard came out with an exclusive contract for midwestern sales until 1929. Jobbers and refiners turned their attention to producing a high anti-knock premium motor fuel, without the benefit of ethyl fluid. They turned to cracked gasoline, natural gasoline, and benzol to produce a competitive motor fuel. Benzol had long been recognized for its anti-knock value in gasoline, but a limited supply had restricted its application in the motor fuel field.

The outstanding event of the 1927 convention at Chicago was the resignation of President Nicholas, with the association reverting to an honorary president from the membership list, and a paid secretary.

This convention was the meeting of the Independent Oil Men of America, for in the spring of 1927 the National Petroleum Marketer's Association had been absorbed. The IOMA set-up in brief required members to be members also of the NPMA, hence the IOMA was the inner association for jobbers marketing under a common brand.

The convention was reported to be a business conference, and a prediction came from Harry Brownell, Brownell Oil Corp., Sioux Falls, S. D., that jobbers may some day merge into an integrated company instead of remaining as individual business men in an association.

Such a far reaching thought failed to cause any unusual stir, NATIONAL PETROLEUM NEWS reported, and President Nicholas followed up with the announcement that he had been working on a preliminary capital set-up.

But the second national association period was waning. Exact causes would be a story unto itself. In passing it could be noted that numerous large jobbers did not come under the Red Hat banner. Some dropped out of association activities early, when it became apparent that the Red Hat movement was to be the keystone of the associations. Others left when the NPMA ceased to exist on the merger with the IOMA. Then, there was the rise of refiner's brands, with jobbers taking on these brands instead of the Red Hat or their own trade-mark.

The Independent Oil Men of America held conventions in Chicago in 1928 and 1929 and at the 1929 meeting talked of renewing the Red Hat campaign. The final general gathering was in St. Louis in 1930 when a suggestion came from the producer's association for a merger of organizations of independent jobbers and producers. But nothing ever materialized.

The thread of other national or large sectional organizations of jobbers runs through both periods. The one most jobbers of today will recall was the American Oil Men's Association with headquarters in Chicago. Conventions were held until that in Detroit, Oct. 9 to 11, 1928. Some previous conven-

tions were those in West Baden, Indiana, Nov. 2 to 4, 1927, and in Chicago, Nov. 16 to 18, 1926. Names of some jobbers prominent in previous national associations appear on programs of the American Oil Men's Association, and conventions were confined to discussions of jobber problems.

Although there was a void in association activities beginning in the late 1920s, the transition between the second and third periods of national organizations may be known as the "code" era. Also, state jobber associations were holding record breaking conventions.

Code Periods

The idea of a code bobbed up in several of the earlier conventions, but the general development of the idea came out of Virginia. Oil men there considered the needs and machinery for a state code, that ultimately blossomed as a national document known as the Federal Trade Commission code.

Then came the industry's second national code, under the National Recovery Act, started with mass meetings in Chicago in June, 1933, one for producers, the other for refiners and marketers. Out of these mass meetings came the final code approved by the federal government.

From mid-1933 through to the spring of 1935, when a Supreme Court decision killed the NRA, the code was the dominant factor in marketing. Memories of that code, with its writing, adoption, interpretations and the multitude of regional and local meetings, are vivid with most jobbers. And while jobbers never achieved recognition under that code, as did other branches of the industry, they were called on to be the main factor in maintaining local committees.

The third, and current period, of national associations started several years ago with the formation of the National Oil Marketers Association. This organization, coming about the time jobbers were so interested in the code, delayed holding a national convention until 1935, when the first meeting with an equipment exposition was held Oct. 29 to 31, in Chicago.

E. V. Weber, Eureka Oil Co., Reading, Ohio, was the first president. M. B. Whiting, M. B. Whiting Oil Co., Clifton Forge, Va., was the second president, elected at the 1935 convention. Paul E. Hadlick has been the secretary.

What niche the National Oil Marketers Association carves for itself in this third period of national associations remains for some future analysis of the dominant issues and trends of this generation of marketers. And jobbers meeting next week in Chicago for the second annual convention will be thinking and talking about the present and the immediate future of the jobber, yet carrying on the tradition of those 25 charter members meeting back there in July, 1909, at the first convention.

Trade Exhibit By 23 Companies To Be Feature Of NOMA Meet

WHEN the caravan of oil men arrives in Chicago Oct. 27 to attend the three-day convention of the National Oil Marketers Association it will find waiting a trade exhibit comprising a wide variety of products displayed by 23 companies.

Oil men will have an opportunity to inspect the latest in valves, hose, fittings, oil burners, gasoline pumps, lighting equipment, air compressors, meters, packaged oil, lubrication equipment, and there will even be a "Little Theater", where one of the exhibitors will show sound movies pertaining to its product.

The Pittsburgh Equitable Meter Co., Pittsburgh, will display a complete line of meters and accessories developed exclusively for the measurement of petroleum products. Included will be a 2½-inch piston tank truck meter, a 3-inch piston bulk meter, and a 1-inch piston service station meter.

Among this company's accessories will be shown a predetermining valve, by means of which the meter automatically shuts off after any previously selected quantity has been measured. Also there will be demonstrations of the meter duplicator, a printing register which provides certified delivery slips showing the readings at the start and finish of any metered sale. Pittsburgh air eliminators, vacuum breakers and strainers will also be on display.

A feature of the American Can Co.'s display will be a generous array of comfortable furniture for lounging purposes. A staff of company representatives will be in attendance, headed by H. A. Pinney, district sales manager. This company's exhibit will be conveniently located, directly opposite the main entrance on the exhibit floor.

The Quaker State Oil Refining Co., Oil City, Pa., will have a display again this year, devoted to motor oil and lubricants. Included in the exhibit will be a varied assortment of merchandising helps and dispensing equipment which the company features. The booth will be in charge of several of the company's sales representatives.

Service station lighting equipment will be featured at the exhibit of the Goodrich Electric Co., Inc., Chicago. In the display will be stand-lights for lighting oil pumps and pump islands, flood lights, lift lights, and other specialized equipment of a similar nature. Flood lights and stand-lights will be shown for use with the new high intensity mercury vapor lamps, as well as with the standard lamp bulbs.

The Automatic Burner Corp., Chicago, will exhibit its line of Kleen-Heet and ABC oil burners and appliances.

The Pennzoil Co., Oil City,

Pa., will feature its "Little Theater", where a thrilling sound picture, "Under Control" will be shown continuously every day and evening during the convention.

So far this year, Pennzoil reports that over two million people have already visited similar Pennzoil theaters at fairs and expositions throughout the country. The company states that the film is packed with 20 minutes of rapid, breath-taking and exciting entertainment, and includes no objectionable advertising.

The Chek-Chart Corp., Chicago, will include in its exhibit the different types of loose-leaf and bound books, large lithographed diagrams, index card arrangements, and other forms in which this service is now being used by the various oil companies.

This company will also display its new fourth edition of the Service Man's Guide to Automotive Lubrication, the new Chexall Accessory Blue Book, and a complete line of wall charts as they are being used by oil companies in all parts of the country.

Canfield's Golden Anniversary, 1886-1936, will be the theme of the exhibit of Canfield Oil Co. at the National Oil Marketers Association trade exhibit. Various ideas are being developed by Canfield's organization to remind jobbers of the company's 50 years in business.

The slide film with talkies, "There's Money In Oil" will be shown to jobbers. The company's line of Pennsylvania oils will be featured in the exhibit. Canfield will have a public address system in its space, to make announcements about the company and its products. The system also will be available to convention officials to make general announcements.

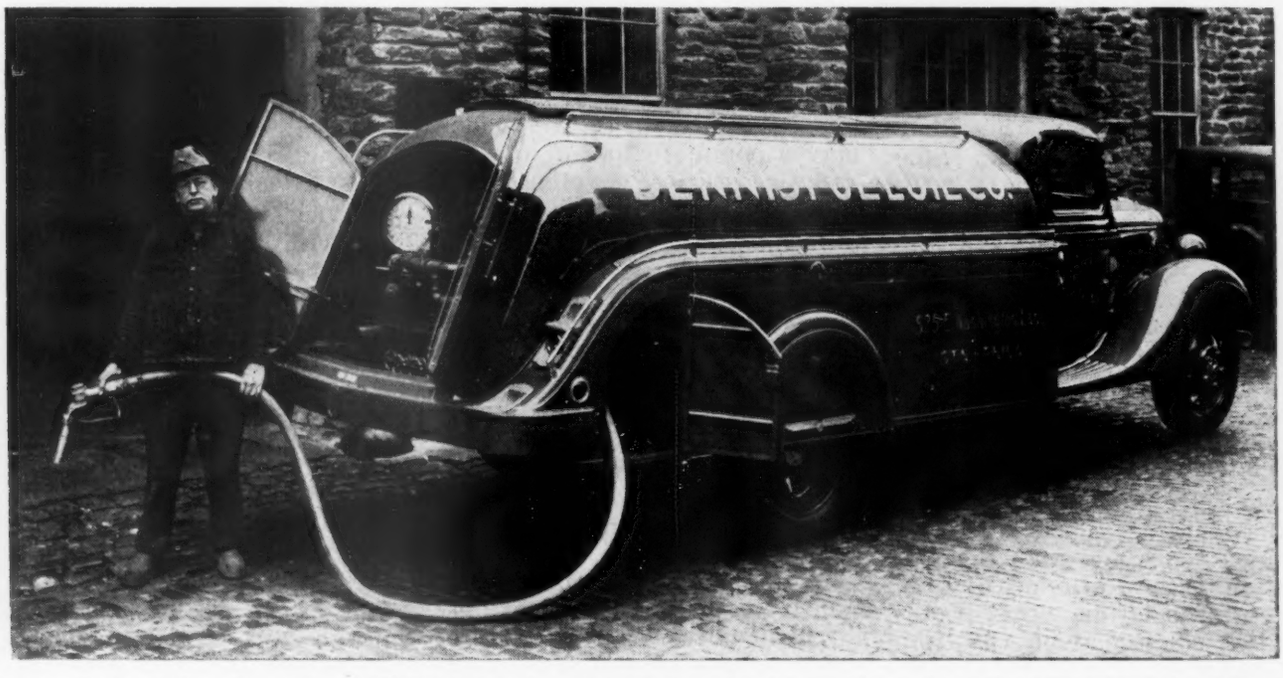
These are just a few of the exhibit features that await the oil men who plan to attend the convention. Many profitable ideas will be found in the displays. New developments in time and labor saving equipment, modern dispensing equipment—many of the new items that the marketer reads about will be exhibited for his inspection.

Completing the list of exhibitors are the following Benjamin Electric Mfg. Co., Des Plaines, Ill.; S. F. Bowser & Co., Fort Wayne, Ind.; Butler Mfg. Co., Kansas City; Chevrolet Motor Co., Detroit; Electric Hose and Rubber Co., Wilmington, Del.; Globe-Union, Inc., Milwaukee, Wis.; Huffman Mfg. Co., Dayton, Ohio; Irving-Cloud Publishing Co., Chicago; Lubrication & Maintenance, Chicago; Morrison Brothers Co., Dubuque, Iowa; NATIONAL PETROLEUM NEWS, Cleveland; Petroleum Age, Chicago; Platt's Oilgram, Cleveland; Sinclair Refining Co., New York; U. S. Industrial Alcohol Sales Co., Inc., Chicago; and the Worthington Pump and Machinery Corp., Harrison, N. J.

Hadlick Addresses Oil Group

NEW YORK, Oct. 7.—Paul Hadlick, secretary of the National Oil Marketers Association, addressed the annual meeting of the Oil Marketers Association of New York, a group of independent jobbers, here last night. He talked on general conditions in the oil industry and the problems of the independent group.

Elmer Hobson, Knight Oil Co., was elected president of the New York association to succeed Alvin Altheimer, Plazine Oil Co. Other officers elected were John Ray, Triplex Oil Co., vice-president and Henry Taylor, Illsley-Doubleday Oil Co., secretary and treasurer.



Bennis Fuel Oil Co., Germantown, Philadelphia, Pa., recently has placed in service a streamlined Ford truck for delivery of fuel to its customers. Rear compartment houses the hose reel and meter. Hose is unreeled at the side through the door as shown

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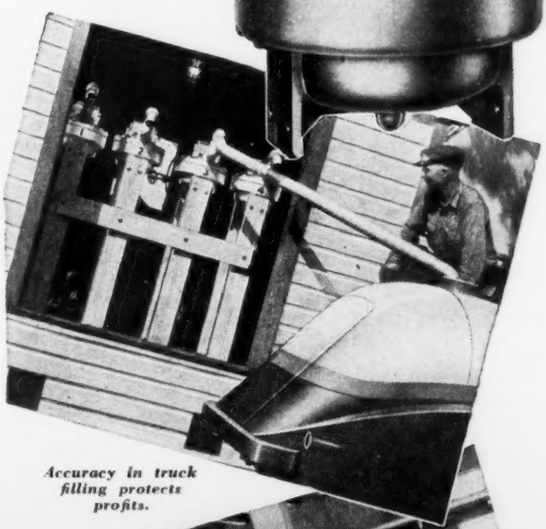

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Water Flooding To Recover Oil

Operators Now Considering the Application of this Method of Recovery in Some of the Early Mid-Continent Fields Can Profit from Experience in the Eastern Bradford District

By **LAWRENCE E. SMITH**
N. P. N. Staff Writer

WE HEAR a great deal these days about water flooding in the Mid-Continent. To some it is hailed as the great specific for all the ills and pains of the stripper well operator. Others, more cautious, are inclined to proceed very slowly and to examine closely every natural and economic factor that might conceivably have a bearing upon this method of artificial recovery of oil from the producing strata.

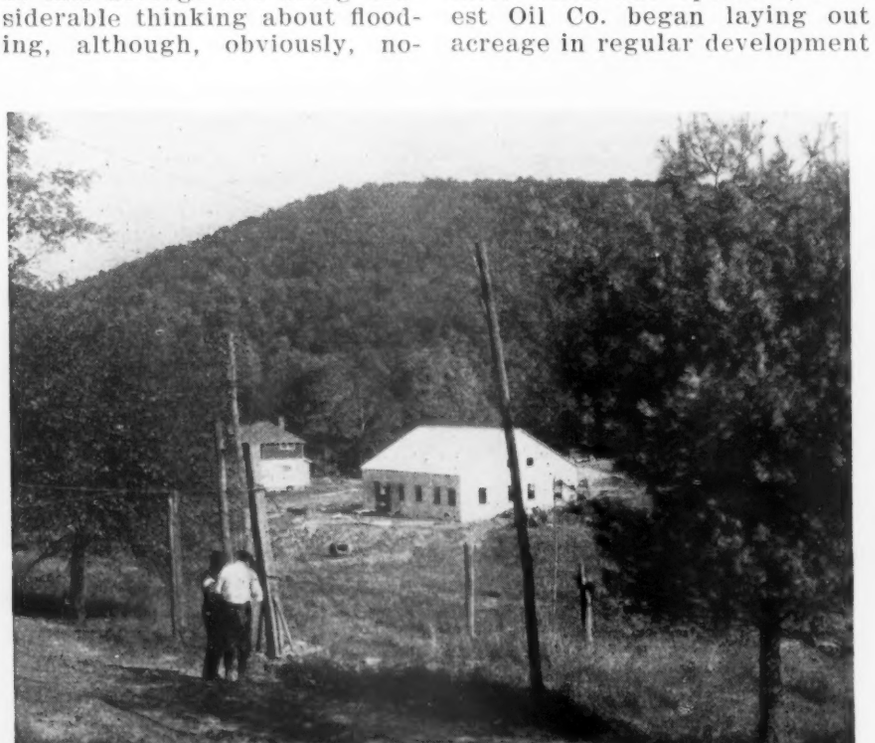
An estimate has been made that there are 150,000 acres of developed oil land in Oklahoma and Kansas, where the depth to the oil sand or sands is 1500 feet or less, roughly equivalent to the producing depths in the Bradford, Pa., field. Operators of this acreage are doing considerable thinking about flooding, although, obviously, nowhere near this entire territory is adapted to this method.

More than 15 years ago this writer made his first visit to Bradford and wrote an article about flooding. At that time the principal method was to put water in a well and back off a considerable distance with oil wells surrounding the water input well. This was known as the circle flood. It yielded results, after a fashion, but a number of operators were then convinced that it was not the efficient way of doing the job.

The radical change in practice came about three years later when one operator, Forest Oil Co. began laying out acreage in regular development patterns, drilling input wells and production wells in straight lines. Spacing was uniform and so close as to be rather breathtaking even in those days.

This writer duly recorded the revolution that had been wrought in flooding and at numerous times since has set out the advance in technique. The pattern of drilling started by the Forest company was known as the "straight line" flood. Today, what is known as the "five spot" method is the prevailing one. Basically, the ideas are the same. The objective is a quick clean-up of the recoverable oil, for the reason that the sooner the investment and development costs are returned the better for the operator. What is known as the present worth of money figures prominently in the value of a flooding project.

Much time has passed and many things have been learned in the Bradford district since the departure was made from the "circle flood" and even less systematic plans. Now, years later, the fever has hit the Mid-Continent. Peculiarly enough, while some flooding had been carried on, it was the entrance of the Forest company into the Nowata district, in Oklahoma last year that sent the fever up.



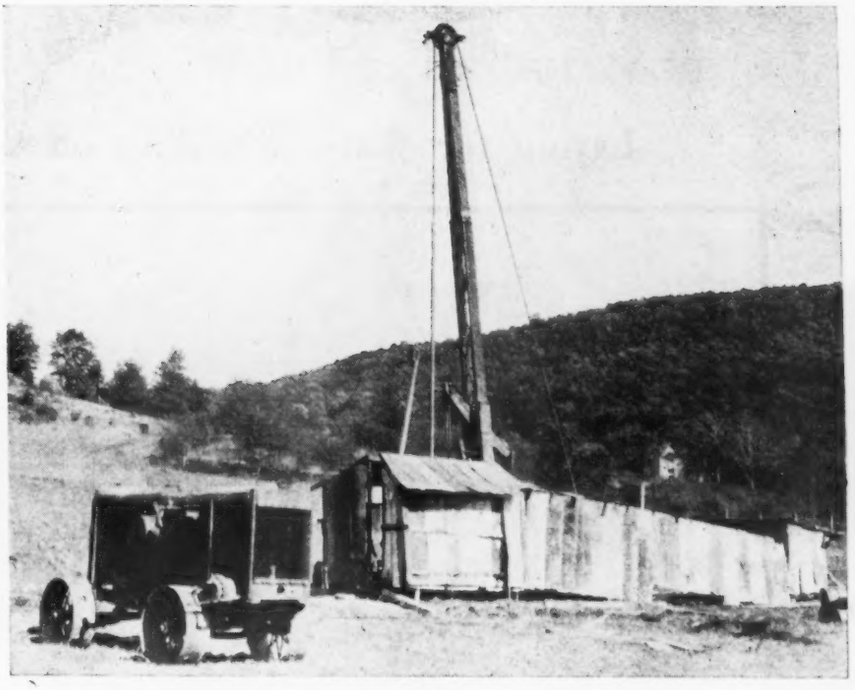
Some of the flood properties in the Bradford field flow their production. In the Nowata district of Oklahoma, operators plan to operate leases in the same manner

AS AN old flood observer, your correspondent views with a little alarm one phase of the Mid-Continent undertaking. It seems that some of the work may be done without due regard to the lessons learned elsewhere, notably at Bradford. One who would seek, without previous experience, to make tires for automobiles would be regarded as not quite bright if he ignored what had been learned at Akron. In this present situation we have

plenty of talent and information available and it will mean many losses if previous experience is not taken into account.

The literature on the subject is vast. Numerous engineers have contributed to articles in the oil trade journals and other studies have been issued as bulletins of associations and schools. One of the best of the recent studies was "Water Flooding in the Mid-Continent," by George H. Fancher and Kenneth B. Barnes, published in "Petroleum Development and Technology, 1936," which is the yearly book on petroleum of the American Institute of Mining & Metallurgical Engineers.

The point sought to be made here is that no operator who is inexperienced in flooding should tackle the job without bringing in the technical men. They charge a fee for their work but that fee may save the operator many thousand dollars. The principal purpose of this article is to induce the operator to "look before he leaps."



Unlike most Mid-Continent areas, the Bradford district has a considerable supply of fresh water at shallow depths. Here a well is being drilled which will be used to supply water for flooding

The publicity that has been given the first of the intensive flood projects in the Nowata field of Oklahoma may, innocently enough, have set up some harmful impressions. The Forest Producing Co. did get some outstanding results on the 160 acres it selected as its first flood block. It hit a high mark on one day in July of 4000 barrels; production is still in the neighborhood of 3000 barrels daily and it seems probable that it will realize a good profit on this venture.

However, it should be remembered the 160 acres chosen for the first development is one of the best in the Mid-Continent from a flooding standpoint. Sand conditions were right, as core analyses revealed in advance of development. The oil was there and the sand would take water readily.

And the company hit it with a bang. It was quite the talk of the neighborhood, the way money was spent. The operators themselves say they purposely spent too much. That is, they deliberately set out to do that thing in the best possible way, rather than skimp anywhere. They realized they never again would develop another Mid-Continent property as expensively as they did this one; but the first one had to be just right, for it was to be the proving ground for developments that would follow.

There are several differences between Bradford and northeastern Oklahoma, southern Kansas or other Mid-Continent areas. The Nowata district for instance, has the advantage in drilling depths—450 to 600 feet against the 1500 and more in Bradford. But there the advantage ends. Nowata district oil now brings, on gravity schedule, $1 a barrel; the Bradford price is $2.45. Nowata is in a country where the water supply is scant at least one-third of the year; Bradford has a plentiful supply. The water used in the Nowata district requires more treating. It comes from the small rivers and creeks of the area and, at low stage, these streams are well filled with sediment, algae and polliwogs. It must be treated and settled and filtered and very careful attention paid that it is clear and pure enough to go into the sand, for it is a serious thing to clog the sand so that water will not enter it.

There is doubt, looking at studies that have been made of the Nowata district, that the recovery per acre will average as high as in Bradford.

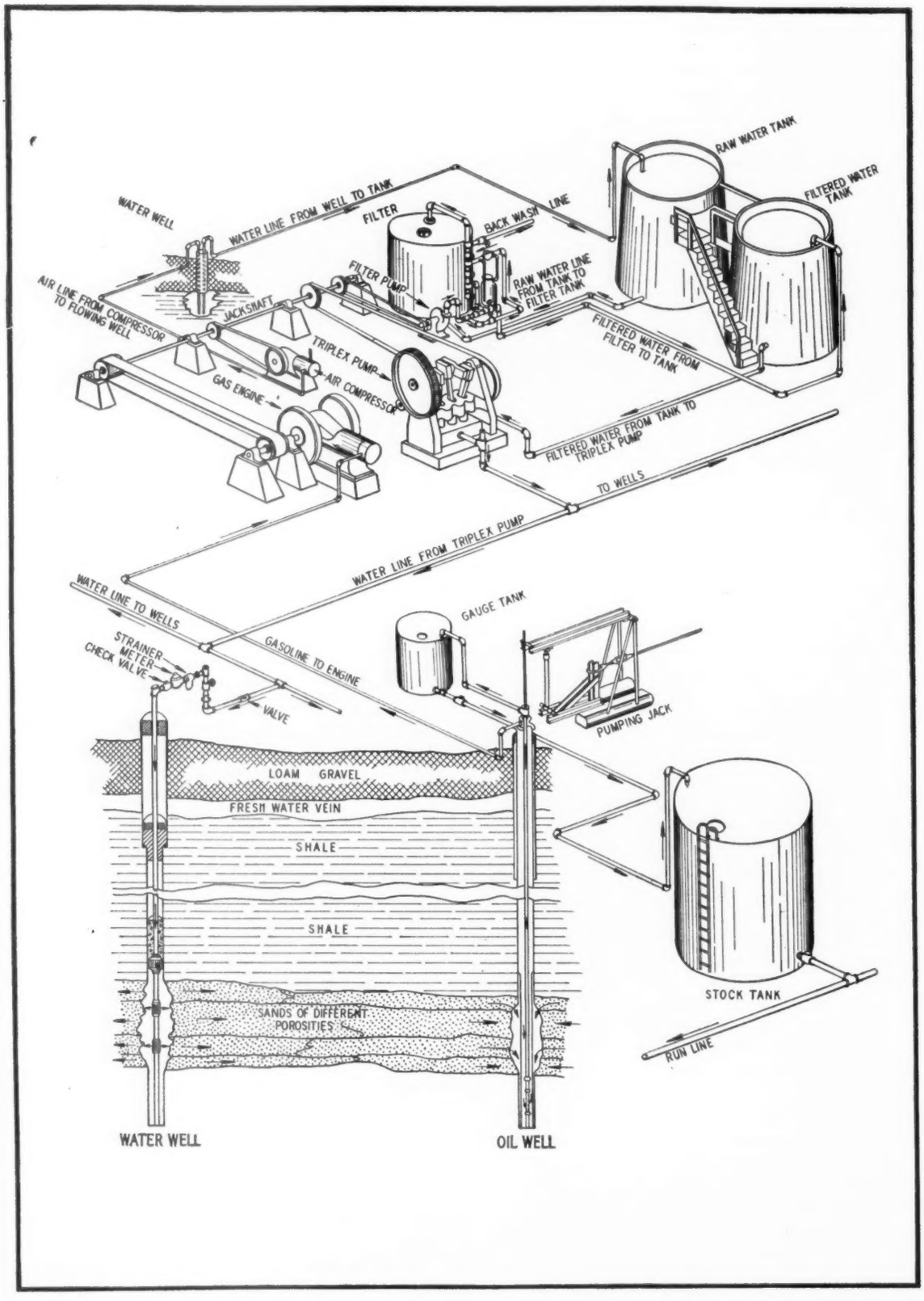
Also, as asserted before, there is great doubt that results elsewhere in the district will be as good as those on the first of the intensive projects. Conditions there were better than average; in fact, competent analysts say that not 10 per cent of the entire area will be found to be as responsive as this first intensively flooded tract.

WITH these warnings ringing in our ears, let us get into the main theme and, with every intention of giving free advice, talk about what is being done at Bradford. After all, that is where the art of flooding has been nursed along and where the money has been spent. The rest of this article is going to be mainly an outline of procedure and not an attempt to tell of results.

Operator A, in the Bradford field, decides to buy a property from Operator B. In the Nowata district we are still in the stage of establishing values by the principle of "take a number"; but the purchasing of pigs in pokes ceased at Bradford some years ago.

First, the prospective purchaser takes an option for 30 to

Layout for Water Flooding on Oil Property



Schematic layout of an oil property where water flooding is carried on, typical of the Bradford district. This is intended only to illustrate the various phases of the operation; actually, water pumps are housed and water is supplied to many input wells from one plant

60 days, depending on how long he expects to be in examining the property. He sends out a surveyor to run the property lines and locate all existing wells on a map. Such well records as are available are obtained and a pipeline statement on past production.

As there are few Bradford properties that do not have one or more input wells on them, the prospective buyer is especially interested in seeing what result was obtained by flooding. He attempts to segregate the increase in oil by wells.

Frequently, though, there are insufficient data on how the property responds to flooding and the appraisal is started by coring. It must be remembered that in the Bradford field of Pennsylvania and the related Allegany field of New York, results from flooding are by no means uniform. There are some properties scarcely worth developing and others that are highly productive. Values, therefore, vary greatly.

THE first well cored usually determines whether the operator wants to continue with his examination. If the first core looks promising, others are taken. A rule of thumb method is to take one core for each 10 acres. It is common practice to end the regular hole about 10 feet above the top of the sand, then use a diamond drill rotary taking say a 2 and ⅛ inch core. From the core, saturation samples are taken each two feet; porosity samples are taken each foot and the highly important permeability samples each six inches.

These factors, porosity, saturation and permeability, are the Holy Trinity of flooding. Others, such as sand thickness, presence or absence of shale partings, faulting, are highly important, but the three first named receive high rating.

Permeability came into its own in recent years. It is the capacity of a medium, such as oil sand, for the transmission of fluids. The boys in the laboratory measure this capacity in darcys and millidarcys. A millidarcy is one one-thousandth of one darcy. Further, your re-

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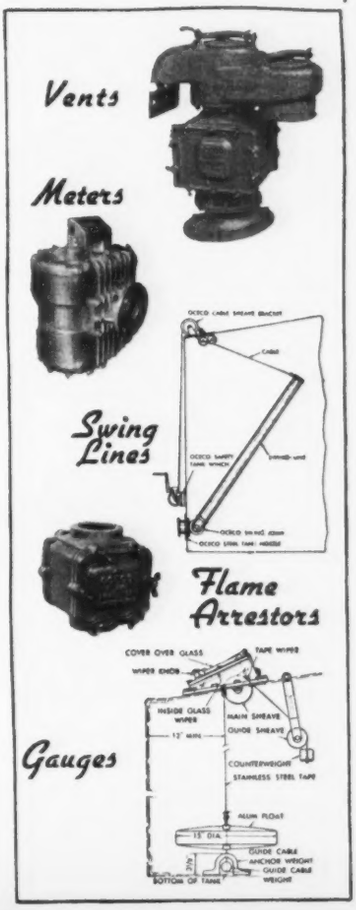

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lator is not going to try to define these terms and the oil operator is not concerned with definitions. The man who makes the analysis of the core will turn out a sand profile, illustrated by the one shown in connection with this article, and will supply all needed explanations. There is little merit in taking the cores unless they are analyzed.

The estimate on oil content and on recovery are given by the core analyst. His report on the conditions uncovered by coring tells the operator whether he wants to buy the property and what he can afford to pay for it, taking into account the development cost, which must then be worked out.

Incidentally, any operator who plans to flood properties which he already owns will benefit by following the procedure used by those who survey a property for purchase.

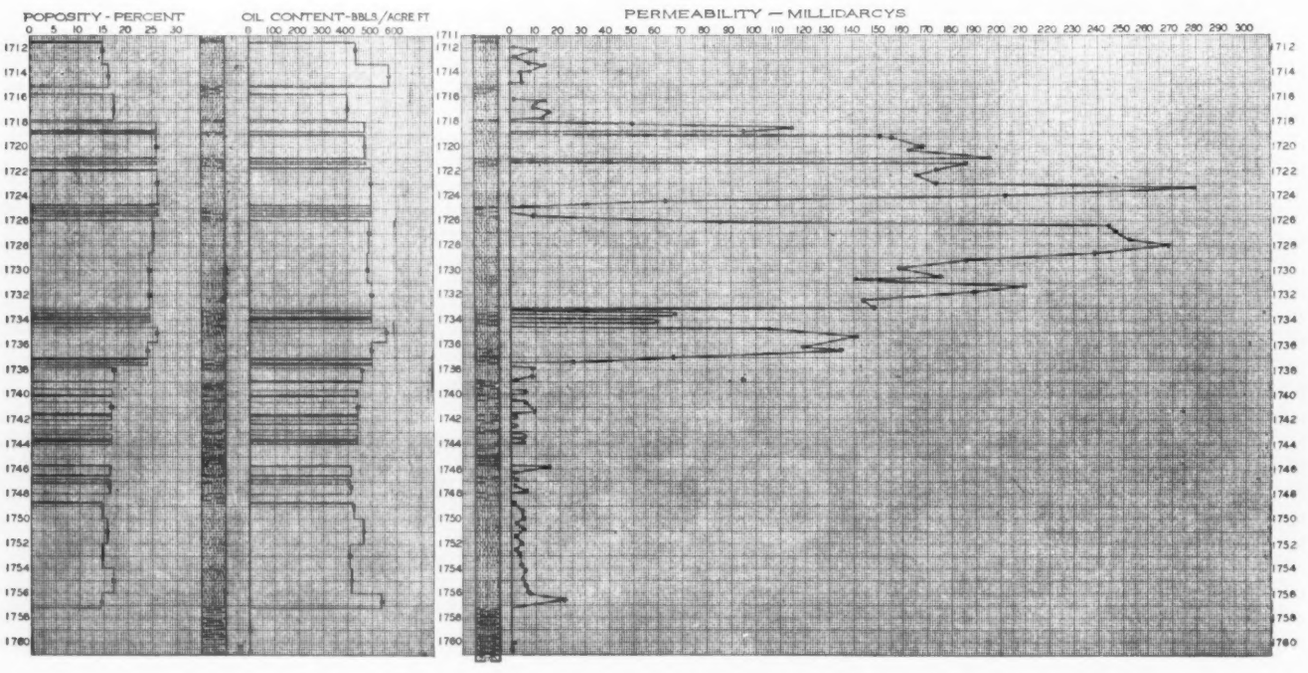
The permeability data give a working idea of how much pressure will be required, how closely spaced the wells should be and how rapidly the oil will be recovered. The amount of recoverable oil, of course, is all important, too. That factor makes up the operator's mind for him as to how much he can afford to spend for development.

If emphasis seems to be laid here on the laboratory work it is because it is so intended. Properties within a given field differ greatly and even in the Bradford district, generally regarded as uniform practically throughout, there have been startling variations in the recovery per acre. One authority asserts that the average recovery per acre to date from properties that have been completely watered out, or nearly so, has been about 4000 barrels; that the range has been from 2000 to 7000 barrels. These figures do not include natural production, but only that attributable to flooding.

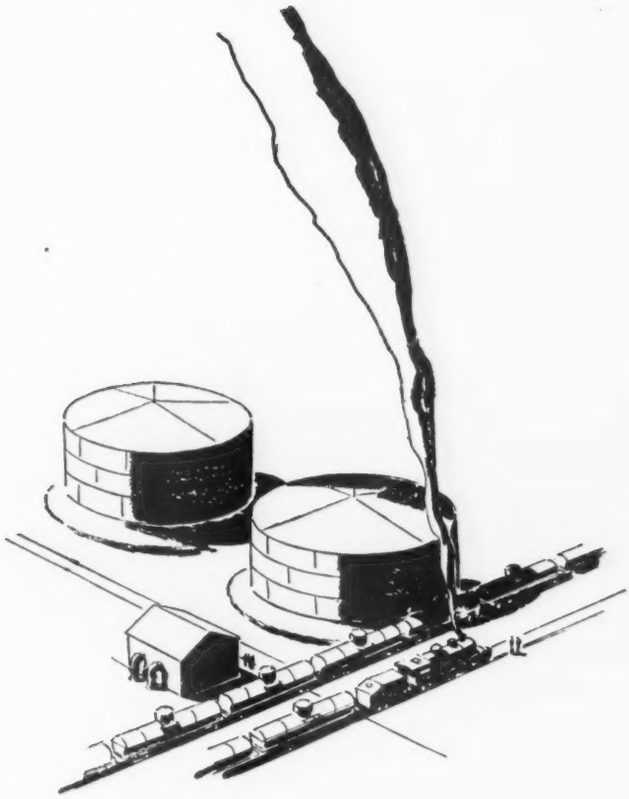
LET us assume that Operator A has now decided to buy the property which he has optioned and has been examining. He now proceeds to plan his development. His laboratory has told him about spacing and the probable rate at which the sand will take water under pressure. There is a limit as to the latter. Some years ago, when a great deal of experimenting was going on in Bradford, there seemed to be a contest to see who could apply the greatest pressure with the force pumps which send the water to the input wells. The race ended when somebody obtained a little evidence that the overburden—formations above the sand—had been lifted locally. Great damage, of course, could be done to a property. A rough way of figuring is that pressures must not equal one pound per foot of well depth, else casing seats may be broken, upper waters admitted to the sand or oil to the upper waters, surface connections broken or shoved out of line.

Item by item, the operator now starts to figure his costs and a great deal of white paper will be used in the process, for he includes everything that will go into development costs. When finished, it is a complete estimate and it is a budget which he takes an oath to himself to follow to the cent. The cost of all supplies is set out and this is figured always on new equipment. It may be reasoned that once flooding has been started, costs will tend to drop for successive blocks, as equipment is moved from flooded out properties and used on those newly developed.

Bradford experience is that little material is worth moving from the lease where it was originally installed. Casing is seldom worth more than the cost of pulling it; powers which cost new $7000 to $8000 are not often worth more than $150; jacks are worn out. Overall



Permeability-porosity-saturation profile made on one core of oil sand, in a preliminary laboratory study. Note the greater permeability of the more porous part. Greatest recovery here would be obtained from about 16 feet of sand, beginning at 1718. The figures on the scale at the left are feet



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General American's newest terminal, at Houston, is the most efficient public terminal in the Southwest. If you export or import in this territory, you certainly should learn about the money saving advantages it offers you.

Terminals: Goodhope, La.; Westwego, La.; Corpus Christi, Texas; Houston, Texas; Carteret, N. J.
Office: 135 S. LaSalle St., Chicago, Ill.

A SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION

A water plant in Bradford field, from which water is pumped to the input wells on the property

salvage from a flooded-out lease can be figured at not more than 2 per cent of the original cost and the whole thing, therefore, is a job for the junkman.

Bradford producers who strive for best results, both in oil recovery and in profits, long ago learned it is economy to buy the best of new equipment throughout.

Looming high in the cost of development is the expense of installing a water plant. The operator finds out how much water the lease will require and he designs his plant accordingly. His core analysis has supplied the foundation data on which to set up figures as to the daily rate of water injection at pressures which will best fit the sand conditions. No Bradford operator of the modern school skimps on water plant cost. Water, under adequate pressure, is the lifeblood of the system and the pressure plant is the heart.

A general figure used in preliminary calculations on Bradford flooding is that three-fourths of a barrel of water will be required each day for each foot of sand. There are many exceptions, of course, to this. Some say that the rate at which Mid-Continent sands, such as the Bartlesville, will take water will be much higher and that cases will be found where as much as two barrels daily per foot of sand will be needed for effective work.

After all development costs have been figured, the operator then sets up his budget by years to see where he will come out. To development cost he must add the per barrel cost of producing oil. The first year is considered to be one in which no return will be had. This is the year for drilling the water wells. It is customary to wait until the sand has been taking water for some time — about nine months in Bradford practice — before taking out any oil. Thus, when oil wells are put on production there is immediate result and the interest on drilling capital has been saved during the period of waiting for the water to begin its repressuring — scouring work.

The second year of the budget begins the inclusion of production costs. In this year, as figured by Bradford operators, about 40 per cent of the oil which will be recovered will be taken out. The third year the recovery will be 30 per cent of the ultimate; the fourth year, 15 per cent; fifth year, 10 per cent and sixth year, five per cent.

All his estimating done, Operator A now decides whether he wants to buy the property at the price asked, at some other price or at any price at all. He has set up his expenditures against his expected return, so many barrels of oil times a price. Some Bradford operators base their calculations on $2.20 per barrel for oil, others use a lower price and some, more optimistic about the future, go higher. In his figuring, he has used, we will say, a 10 per cent discount factor — 6 per cent interest, 4 per cent risk.

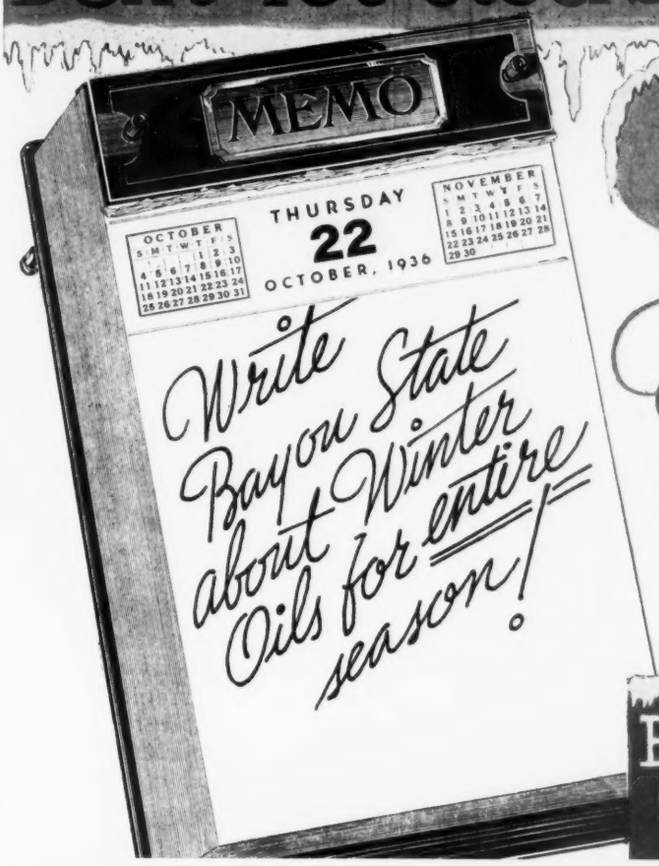
If, instead of dickering for the property, he already owns it, he goes through the same detailed, painstaking calculations to decide how best to flood the property, or whether to flood it at all.

The seasoned Bradford flood operator, like an expert swimmer, isn't afraid of the water. He puts it in the sand in volume that is rather frightening to one unacquainted with the subject. Here are some figures on one of the better properties in the district: To Jan. 1, 1936, nine barrels of water had been put in to each barrel of oil recovered and the outlook is that the figure will be 11 barrels by the time the property is exhausted. Total water put in, 1,934,457 barrels; total oil produced, 211,937 barrels; total water produced with the oil — much of it comes back — 431,458 barrels.

TWO barrels of water have been recovered to each barrel of oil. The property, now nearing the state where it will not pay to produce, is currently making 30 barrels of oil and 620 barrels of water daily. The operator is still putting in water, 1170 barrels daily. Currently, then, 39 barrels of water are going in and 21 coming out for each barrel of oil. Finally, the cost of operation per barrel will equal the market price and that will be the day for ending the operation. At that time, it is expected, the cost of production over the life of the flooding operation on this property, will have totalled 60 cents per barrel — 40 cents lifting cost, 8 cents taxes and 12 per cent overhead and administration. The cost of acquiring the property and of developing it, of course, are not included in these figures.

Mounting his pulpit once more, this writer would stress again that the business of put-

Don't let stocks run *low this winter!*



WINTER USED TO MEAN putting the car up for the season . . . but not any more. Motorists are more "winter lubrication conscious" this winter than ever before. They know with anti-freeze in the radiator, and proper lubrication, low temperatures can't stop them.

More cars will be on the road this winter than ever in the history of the automobile . . . that means more oil will be sold . . . and *that* means never before have you had greater winter sales opportunity. Set a new sales record with

SUB-ZERO OILS

Noted for their proven performance under the toughest service conditions, safe lubrication at all speeds and at any temperature to 40° below ZERO!

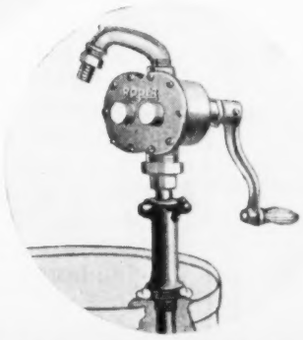
Low stocks often mean lost sales . . . don't lose any sales this winter . . . get in touch with Bayou State for your requirements, whether tank car, drums, or sealed cans.

BAYOU STATE OIL CORP.
SHREVEPORT, LOUISIANA

HAND TRANSFER PUMPS

for LIGHT OILS

Fig. 1069EA is a vane gear pump for pumping thin liquids such as kerosene, naphtha and gasoline. Capacity —12 gals. per minute.



for HEAVY OILS

Fig. 3402 is a spiral gear pump for handling heavy oils, fuel oils and other thick liquids. Capacity—11 gals. per minute.

Roper Hand Rotary Pumps will transfer any clean liquid—from gasoline to transmission grease. Ideal for transferring liquids from steel drums, portable tanks, etc. The wide variety of mountings make them adaptable to practically any hand pumping need.

Ropers will greatly reduce your pumping costs. They are easy to operate, quickly deliver their large capacity, are safe, eliminate waste and are DEPENDABLE. There is a need for at least one Roper Hand Pump in every Bulk Station, Refinery and Service Station—no matter how large or how small!

TANK TRUCK and BULK STATION PUMPS with capacities of 1 to 700 gallons per minute are also manufactured by Roper.

ROPER Rotary PUMPS
DEPENDABLE - SINCE 1857

Send this Coupon today to GEO. D. ROPER CORP., ROCKFORD, ILLINOIS

Gentlemen:

Please send without obligation Bulletins and prices on Roper Rotary Pumps (check literature desired).

N2 on Hand Transfer Pumps | N7 on Bulk Station Pumps | N8 on Tank Truck Pumps

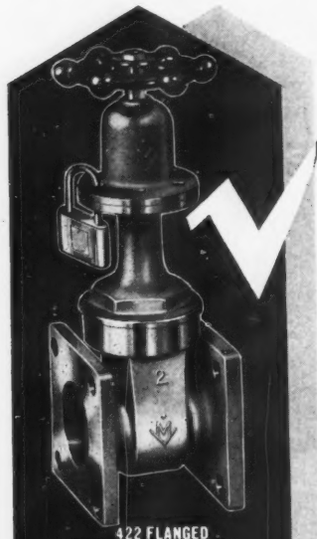
Company .....

Individual .....

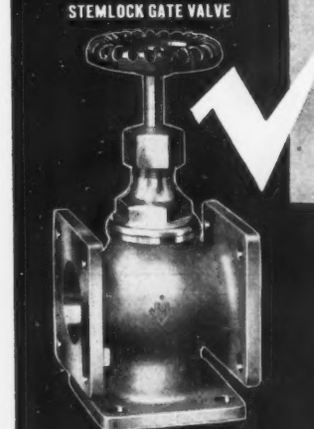
City ..... State .....

FIRST

IN THE DEVELOPMENT OF COMPACT FLANGED VALVES FOR TRUCK TANK SERVICE



422 FLANGED STEMLOCK GATE VALVE



619 FLANGED CROSS VALVE

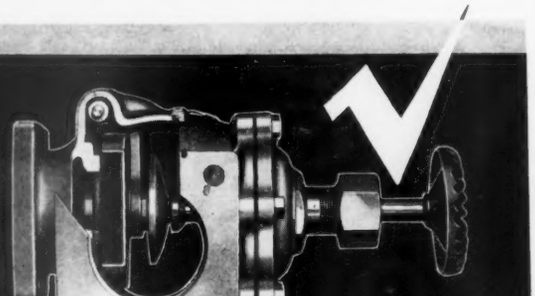
MILVACO engineers . . . in co-operation with leading oil company engineers . . . have pioneered many important improvements in valve design and construction. And most of these developments have now been adopted by the valve industry.

PERHAPS THE MOST OUTSTANDING EXAMPLE IS THE COMPACT SQUARE-FLANGED VALVES FOR TRUCK TANK INSTALLATION.

Metals may be moulded or formed to duplicate, in general appearance, the product of the pioneer. BUT TO DUPLICATE MILVACO ENGINEERING REQUIRES MILVACO ENGINEERING AND RESEARCH FACILITIES.

Other important MILVACO developments include the STEMLOCK Gate Valve, Universal Hose Nozzle Valve, Combination Stop and Check Valve, Offset Cross Valve, the PERMALENE Disc Construction now used as standard in all MILVACO Hoze Nozzle Valves for meter pumps, Truck Tank Faucets, Combination Stop and Check and Offset Cross Valves, Composition Disc Foot, Angle Check, Vertical Check and other MILVACO Valves.

MILVACO still leads in the development and perfection of advanced engineering features . . . that's why MILVACO Valves and Fittings give longer, more dependable service at a minimum of cost.



324 COMBINATION STOP & CHECK VALVE

Send for illustrated price list "N" which lists and describes MILVACO Valves and Fittings.

MILWAUKEE VALVE COMPANY

MILWAUKEE **WISCONSIN**

Manufacturers of MILVACO Valves and Fittings for the Oil Industry

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I want "my own personal copy" of NATIONAL PETROLEUM NEWS each week. Send me the next 52 issues for which I enclose $5.00. (Foreign $6.50, Canada $7.50 including tax.)

NAME.....

St.-Box.....City-State.....

Company.....Position.....

ting water into an oil sand has its separate technique. The beginner can learn all this by himself and without regard to what has been learned, but he is likely to pay quite dearly for his information. Whether results in the Mid-Continent will be better or worse than at Bradford matters not for purposes of this discussion. The procedure developed there can be applied in Oklahoma, Kansas and Texas, and much money will be saved all around if each flood project be undertaken with the same preliminary study that the efficient Bradford operator makes of his projects.

Dealers Form Mutual Buying Agency

ST. PAUL, Minn., Oct. 12.—Mutual Dealers Wholesale, Inc., has been organized by some 2000 jobbers and retailers in five states around Minnesota to supply members with lubricants, tires, batteries and accessories for meeting competition of chain stores and mail order houses.

A. W. Guttersen is manager. The mutual wholesale has taken over the plant here of the Willhelm Lubrication Co., of which Mr. Guttersen was president.

Objectives of the mutual wholesale outlined by Mr. Guttersen are to meet these needs of marketers:

"For most independent oil dealers, gasoline volume and margins do not provide a satisfactory income. Automotive supplies and accessories are the logical merchandise companions of petroleum products, but chain stores and mail order houses have successfully invaded this field and in recent years have secured a shocking percentage of the total volume of sales.

"In addition to his gasoline and the branded motor oil which accompanies it, the independent dealer needs a source of supply for lubricants, tires, batteries and automotive accessories of such quality and at such prices as will make it possible for him to compete profitably with chain stores and mail order houses.

"And above all, the inde-

pendent oil dealer needs guidance in modern merchandising tactics. Compared to such other fields as those of groceries, drugs, etc. the independent retailers of petroleum products and automotive accessories have much to learn about retail merchandising. And if they are to recover any part of the sales volume in lubricants, tires, batteries and automotive accessories, which they have lost to the chain stores and mail order houses in the last five years, it behooves them to learn quickly."

Mutual Dealers Wholesale, Mr. Guttersen explains, has been developing during the past two years to need such needs. Members own and operated the wholesale business and oil compounding plant at 2361 Hampden Ave., St. Paul, on a mutual basis.

The enterprise was incorporated under Minnesota laws. Authorized capital is $250,000. The organization will consist of one director from each state served.

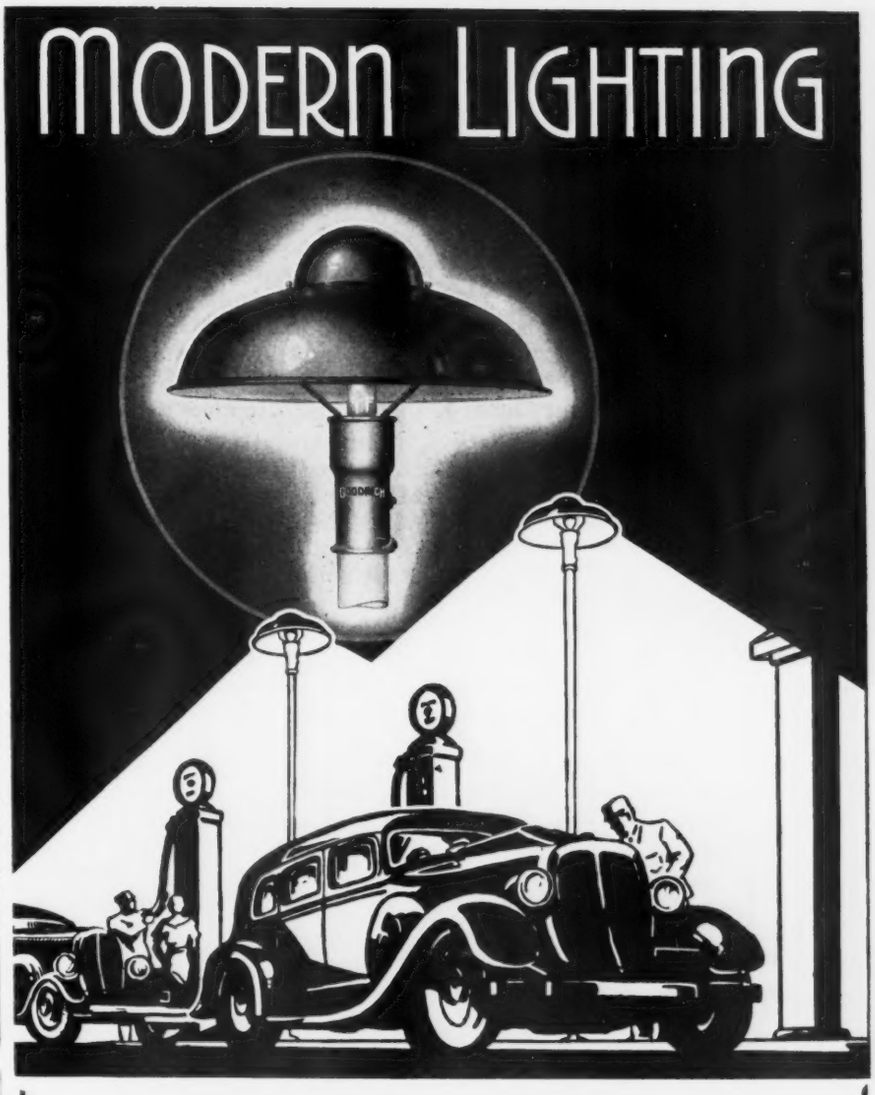
Atlantic Acquires Site For Water Terminal

WILMINGTON, N. C., Oct. 15.—Atlantic Refining Co. has acquired a site on the Cape Fear River, adjoining the terminal of Shell Petroleum Co. and is considering the erection of a large terminal to accommodate tankers direct from the Gulf.

At present Atlantic has a smaller terminal at Wilmington which, however, can handle only smaller tank vessels.

Republic Oil Co. has taken over and is now using the Wilmington terminal erected by a group of jobbers headed by Sam Brockwell. Republic has also arranged for terminal facilities at Savannah, Ga., and jointly owns, with Delta Oil Co., of Petersburg, Va., the City Point terminal at Hopewell, Va.

Sites at Charleston, S. C., and Wilmington have been acquired with a view to co-operative terminals for groups of independent oil jobbers in these states. So far, erection of terminals on these sites has not been started, it is understood.



MODERNIZE FOR PROFITS WITH GOODRICH STAND-LIGHTS

GOODRICH STAND-LIGHTS ARE THE SIMPLEST AND MOST ECONOMICAL MEANS OF MODERNIZING THE GASOLINE SERVICE STATION. OLD STYLE STATIONS PAY FOR GOOD ILLUMINATION WHETHER THEY GET IT OR NOT. LET US HELP YOU MODERNIZE YOUR WAY TO GREATER PROFITS.

WRITE FOR CATALOG 61

MEET US AT THE NATIONAL OIL MARKETERS ASSOCIATION TRADE EXHIBIT STEVENS HOTEL CHICAGO

GOODRICH ELECTRIC COMPANY

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OFFICES IN ALL PRINCIPAL CITIES

Industry's Oil Change Program Receiving Wide Approval

NEW YORK, Oct. 11

SUPPORT of practically the entire oil industry in a campaign to educate motorists on the desirability of changing crankcase oil at proper intervals seems assured, following an announcement that an oil company Committee on Oil Change Practice had been formulating such a program to present to the industry.

W. H. Correa, of Socony-Vacuum Oil Co., Inc., chairman of the committee reports that even though the committee's report has been public only three weeks, that oil companies all over the country are sending him letters approving the object of the campaign and signifying their willingness to support it.

The oil change campaign, first made public in the Sept. 23 issue of NATIONAL PETROLEUM NEWS, is a development of the Committee on Oil Change Practice, which has spent several months formulating a simple and understandable report to tell the motorist the reasons for periodical oil changes.

The committee is now submitting the campaign material to all oil companies not represented at the group's meeting at Atlantic City during the recent N. P. A. convention. A sub-committee is soon to be appointed by Mr. Correa to take the report to the automotive industry, where an effort will be made to obtain the co-operation of service managers and executives of the car manufacturers.

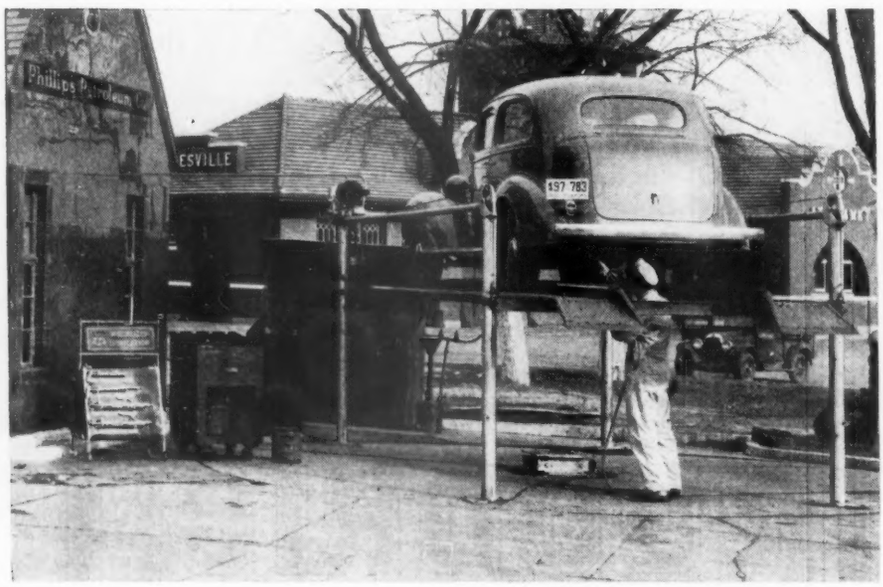
Assisting Mr. Correa on the committee are J. W. Saybolt, Standard Oil Co. of New Jersey, vice-chairman, and J. G. Walker, of Socony-Vacuum, secretary. Other members of the committee include L. C. Eldridge, Shell Petroleum Corp.; H. P. Hobart, Gulf Oil Corp. of Pa.; O. J. Tuttle, Empire Oil & Refining Co.; Fayette B. Dow, National Petroleum Assn.; and B. B. Mears, Cities Service Co.

It is anticipated that the automotive industry will support this campaign to educate the car owner in this matter of regularity of oil changes. New types of engine bearings will undoubtedly be of valuable assistance in offering motorists logical reasons why oil should be changed more regularly.

It is hoped that when the oil industry comes forward with an oil change program based on provable facts, that car manufacturers will standardize on such a program in their instruction books and through their dealers.

The report of the Committee on Oil Change Practice was based on data gathered by research and engineering staffs of a number of large companies. The text of the committee's recommendations was published on page 12, of the Sept. 23 issue of NATIONAL PETROLEUM NEWS.

Outdoor Showmanship of Lubrication Service



Outside lubrication departments can be made to serve for display and demonstration purposes where modern equipment is used, as at this station of the Phillips Petroleum Co., at Bartlesville, Okla. Even greater tidiness should be observed than where the lubrication facilities are inside, for the fleeting glance of the passing motorist may be what decides him to bring his own car there later, or to take it to some other station

Dealers Organize In Wis. County

LA CROSSE, Wis., Oct. 15.—With the Iowa plan of marketing effective in Wisconsin, La Crosse county retailers have formed an association to "foster mutually helpful practices—and to correct practices contrary to sound business principles."

At a meeting in La Crosse Oct. 15 at the Yearly Hall, more than 100 dealers in the country, with Roy L. Brecke, secretary of the Wisconsin Petroleum Association, organized and elected officers for the La Crosse County Retailers Association.

A. J. McMann was elected chairman of the board of directors. J. E. Stokke was named president. C. K. Bine was made vice-president, and C. H. Holseth secretary- treasurer.

Articles of incorporation for the association are to be filed with the state department immediately. The new association will shortly hold its initial meeting. Organization problems, as well as problems confronting the individual dealer will be taken up, according to Mr. McMann.

DON'T TAKE A TIP

from your ***RAZOR***

ABOUT OIL BURNER SALES AND PROFITS

Haven't you often wondered how they could do it . . . sell those heavy, expensive looking, safety razors for so little money, we mean. The answer is simple . . . they don't want to make money selling razors . . . they want to create a market for razor blades.

Oil burners are different, though. True, every time you sell an oil burner you make a year in year out customer for oil . . . and there's a profit in selling oil. But here's the difference . . . you can make a profit in selling the burner, too. And there's no mysterious secret about how to do it.

. . . *just follow this formula*

Pick a good oil burner . . . ABC for instance. We've been making good oil burners since 1920 . . . and they have been working since 1920, too. We've built and sold over a hundred thousand of them in that time . . . and we have been increasing our production steadily. The product has to be *right* to set up a record like that.

Get a good sales plan . . . We'd like to discuss with you our carefully worked out and proven merchandising plans. We'd like to show you, too, the records of various operations of ours showing the results of using those plans. We're not guessing, you see. We *know* how these plans will work out because we know how they *are* working out.

And . . . *you'll make a good profit* . . . here again we only want a chance to *show you*, not tell you, how oil burners are being sold at a profit . . . and how they are insuring fuel oil profits for years to come. Why not write for details TODAY.

See our Display N. O. M. A.

ABC Oil Burners

Stevens Hotel Convention

AUTOMATIC BURNER CORP.

1823 CARROLL AVE. **CHICAGO, ILLINOIS**

• MARKETS •

CLEVELAND, Oct. 19

THE higher gasoline prices established in the Mid-Continent and Mid-Western markets early last week were well maintained throughout the week, as consumption continued well above the record established last year. Despite the fact that crude runs were above levels believed by most observers to be uneconomic, gasoline stocks declined, so that offerings were in fairly good balance with demand.

With motoring weather favorable throughout most of the large consuming territory of the country, particularly the middle west, jobber demand for gasoline was absorbing more than current production. Refiners reported that movement both against contracts and on spot sales was sufficient to keep stocks from increasing.

There still was no general agreement among traders as to just why the market should run against the usual seasonal trend. This was particularly true in view of the fact that the same factors that forced lower prices in September were still in existence. These factors were the high rate of crude runs and relatively heavy stocks.

There seems to be no reason to believe that demand is particularly far ahead of some of the more reliable estimates, but the improvement in the market apparently is due directly to the heavy demand. Sellers reported, too, that buyers were not resisting the advances to any extent. Apparently jobbers' stocks were such that they had to place orders without taking time to shop around as they usually do.

The Mid-Western market was in its best shape for some time. Traders said that price shading was virtually nonexistent, indicating that there was not the usual competition for current business. All grades of gasoline were advanced 0.125 cent early in the week, and before the week ended some sellers were asking still higher prices.

The only unsettling influence on the Mid-Western market was the appearance of offerings of Michigan gasoline in some parts of the territory in which Michigan gasoline has not been offered in some time. Traders were not showing much concern about these offers, but they were a definite factor in the stability of prices.

Buying was sufficient in the Mid-Continent market to keep stocks from showing any appreciable increase. In some instances, refiners were in the market as buyers in order to get enough gasoline to meet their regular commitments. Reports indicated that several refiners who dispose of most of their gasoline in the open market had cut back their crude runs. These reports apparently had considerable truth, although runs at plants where most of the production moves on contract probably were increased enough to at least offset the reductions at the other plants. The net result, however, was to keep spot offerings pretty much in line with demand.

A foreign buyer placed an order for a cargo of 64-66, 375 e.p. gasoline for November lifting at the Gulf. Price paid was 5.375 cents, 0.125 cent under prices most suppliers had been quoting previous to last week. When the inquiry was received, however, it was indicated that the business could be had at 5.375 cents. There were no open market sales reported for domestic lifting, although several inquiries were in the market.

While demand for gasoline along the eastern seaboard was at a good seasonal level, tank car prices for the 65 octane and above gasoline were reduced early in the week at some northern points. Following the reduction, however, buying was sufficient to keep the market fairly steady.

All grades of gasoline were fairly firm in the Pennsylvania market. Occasional reports of price shading were heard on the third grade gasoline but the higher octanes were steady at the levels prevailing most of the summer.

Except for several cities in the east, retail and/or dealers tank wagon prices were generally unchanged. Dealer tank wagon prices were reduced at several points in New England, causing a further drop of 0.07 cent in the gasoline index. Thus the margin between tank car and tank wagon prices becomes still narrower.

Gasoline was fairly steady on the west coast, although increased offerings of third grade in the Los Angeles Basin area tended to disrupt the retail price structure in that section.

Another group of independents on the west coast were said to be negotiating for a marine terminal at Los Angeles with the idea of importing a cargo of gasoline from the Gulf coast. This is in addition to the cargo already said to be on its way from the Gulf to the west coast.

Lubricating oils showed little change, although Mid-Continent bright stock was unsettled. Pennsylvania cylinder stocks were easy, although no definite change was noted in prices.

Wax was fairly steady.

N. P. N. Gasoline Index

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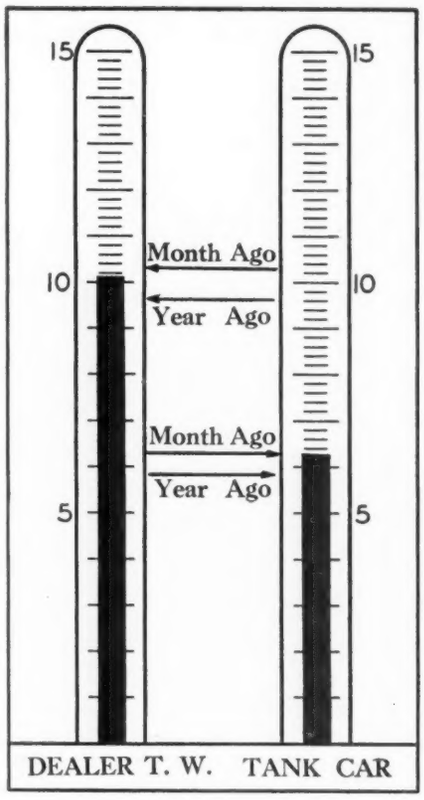

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities. It replaces the retail index discontinued for lack of sufficient postings of retail service station prices. Tank car index is a weighted average of 13 wholesale markets for regular-grade gasoline. The gasoline price index this week represents the following prices in cents per gallon:

	Dealer T. W.	Tank Car
Oct. 19	10.11	6.26
Month ago	10.31	6.23
Year ago	9.66	5.84

Mid-Continent

Gasoline Firm

TULSA, Oct. 17

THE motor fuel market in the Mid-Continent held easily to the ground it had gained the previous week and the first part of the past week. There was some indication late this week that a continuation of buying orders through next week might cause a further improvement.

Several factors were credited with helping the market hold its ground. In the first place, buying orders were brisk throughout the week as consumption was reported comparatively heavy throughout the middle west. Refiners having most of their output under contract reported shipping instructions were sufficient to keep stocks from showing any appreciable increase. In a few instances refiners were buying in the open market, not to obtain third grade gasoline but to obtain regular grade to apply on commitments.

Another factor generally pointed out was the reported cutting back of crude runs by several refiners. How much this actually had been done was not known definitely. The trade, however, was inclined to believe some reduction in runs, coupled with the continued heavy consumption, had brought about an unusually healthy market for this season.

Rodessa gasoline continued to hover over the market, not so much a direct threat but more a psychological hazard to the regular gasolines. As one trader pointed out, the Rodessa gasoline was not wanted generally by the trade, and when one price failed to move the material, a lower price was pinned on it. This price regardless of the fact the gasoline was not in demand, reacted on the higher octane grades.

The natural gasoline market remained steady throughout the week. Offerings were reported freer in some quarters but as soon as the material was offered it apparently was absorbed in other quarters.

With most of the current month's production well sold up manufacturers began looking into the prospects for next month. One encouraging sign was the fact that one large user of natural gasoline already was in the market for his November requirements. This buyer was getting all his October requirements from one major manufacturer. But this seller, it was reported, would be unable to book any of this business in November. The large buyer accordingly was having to distribute the business for November among other manufacturers. This is expected by some observers to keep the market generally on an even keel.

A slight increase in demand for kerosine was reported late in the week. The increased buying was noted primarily in Kansas, but it was taken as an indication this oil may come into its own within the next two or three weeks.

Further uneasiness in the bright stock and neutral oils market was noted late in the week. While prices generally remained at unchanged levels, there was some adjustment to those levels by refiners who previously had been quoting above the prevailing market.

Chicago

Gasoline Higher

CHICAGO, Oct. 17

IDEAL motoring weather, resulting in a sustained, if not heavy, consumption of gasoline was the outstanding feature of the Mid-Western gasoline market the second week of October. Throughout much of the middle west jobbers reported retail gasoline sales as high as 25 per cent over the same period a year ago.

The increase in consumption brought about by the mild weather has had the effect of removing from the Mid-Western market virtually all of the surplus and low priced gasoline which had been offered through sellers here.

Quotations were 0.125-cent higher on all three grades of U. S. Motor gasoline the past week. Low octane U. S. Motor which usually bears the brunt of market action and reaction led the advance. Offerings of this product were not free at any time during the week, according to reports. As the week progressed some sellers were quoting still higher prices.

Offerings of unleaded 68 to 70 octane, and 63 to 67 octane gasolines, while freer than third grade, nevertheless were held for at least the lows of published prices, with shading virtually non-existent, traders reported.

Apparently there was only one discordant note in an otherwise harmonious gasoline market. Michigan gasoline again was becoming a factor in some sections of the middle west. For many months Michigan gasoline has moved almost entirely within the state. Recently, however, offerings and sales have been made into the territory which normally would be supplied from southwestern refineries. Michigan quotations, in some instances, were reported to be around 0.25-cent under prevailing Group 3 quotations.

Based on past performance traders did not expect this condition to last. Previously the gasoline market in Michigan was subject to backing and filling. As the market turned easy gasoline found its way over a wider area. As the surplus was worked off, offerings were withdrawn.

Kerosine ruled steady to higher in most quarters of the Mid-Western market. Virtually all of the kerosine which remained on the market after the slow agricultural season has been moved, according to reports.

A good portion of the surplus was moved as range oil.

Pennsylvania

Market Steady

CLEVELAND, Oct. 17

TRADING was fairly active and supplies were in good balance with demand in the Pennsylvania market the week ended Oct. 17. Prices generally were firm with kerosine pointing higher. Bright stock was reported unusually steady for the season, while seasonal buying of neutral was absorbing about all of this oil being offered on the market.

Favorable motoring weather throughout much of the Pennsylvania refiners' marketing territory was keeping demand for gasoline about even with production. Kerosine and fuel oil and burning oil blends of the two were in good demand as jobbers and distributors prepared for cooler weather.

Both the higher octane gasolines and the third grade material were well held. Offerings met demand but refiners were not pushing sales. Some price shading was reported on the U. S. Motor, but volume moving at lower prices was not generally considered representative of the market. One report indicated that two refiners, usually sellers of U. S. Motor, were buying.

Several sellers advanced their asking prices for kerosine the past week, but others did not follow. Slightly warmer weather was said to be hurting the current demand for kerosine and burning oil blends.

Industrial demand for fuel oil combined with the steady demand for cracking stock kept supplies of 36-40 fuel oil low. Some refiners reported they were sold up for October, others were not anxious for orders at current prices.

No further easing in cylinder stock prices was noted. Apparently the lower prices established the previous week had attracted enough buying to absorb most of these oils offered on the spot market.

Moving against the usual seasonal trend, bright stock remained steady. Buying was mostly for inter-refinery accounts with much of the oil sold destined for foreign shipment. Due to the fact that this demand was largely for lower pour and lighter color oil, bright stock manufacturers were not able to produce as much as when they run on the No. 8 color, 25 pour test oil.

Neutral oils continued to point higher as supplies were limited. More refiners, in need of more neutral than

they can produce, were in the market as buyers. In some instances they found difficulty in getting the oil they needed, as only a few refiners were willing to sell neutral except to their regular accounts.

Wax remained firm as buying continued steady. Offerings were in fairly good balance with supply.

Coastal

Export Cargo Sold

NEW YORK, Oct. 17

EXPORT markets at the Gulf during the week ended Oct. 17 were enlivened by a cargo sale of gasoline. Otherwise, the cargo market was active as to inquiries but with no open market sales reported.

The export sale involved a full cargo of 64-66, 375 e.p. gasoline for November shipment to a European buyer at 5.375 cents f.o.b. the American Gulf. American suppliers had generally been quoting 5.5 cents for 64-66, 375 e.p. gasoline but when this inquiry came into the market one or two indicated they would go as low as 5.375 cents. This price was subsequently confirmed when the deal was closed at this figure.

Export gasoline markets have been fairly active the past six weeks. Open market sales have been limited to three or four cargoes within that time, but during the spring and summer no open market sales were reported. American suppliers' prices apparently are once more in line with their competitors in the European markets.

Bunker oil continued to be actively sought at the Gulf for domestic lifting. However, few cargoes were offered in the open market and suppliers said they experienced no difficulty in obtaining $0.95 a barrel.

Light fuel oils and kerosine also were coming in for considerable attention from cargo buyers, but movement was confined largely to shipments under contract, traders said. No changes were reported in prices.

Wax

Scale Steady

NEW YORK, Oct. 17.—The market for crude scale wax remained steady the past week without any material changes reported in prices. Traders generally said that demand was light at present but that refiners were fairly well sold up and not in need of shipping instructions.

One refiner reported that his wax output for November had been sold at the same price as his October output.

Fully refined wax markets were quiet. Demand was about normal for this season and prices were unchanged.

Eastern

Gasoline Fairly Active

NEW YORK, Oct. 17

TANK car gasoline demand was reported at a good seasonal level at eastern seaboard terminals during the past week. Tank car prices were fairly steady towards the close of the week, following the reductions at northern points early in the week.

The reductions brought the general selling level for 65 octane and above gasoline for tank car delivery to 6.75 cents at Boston and Providence. At New York harbor and Baltimore some tank car sales were reported at 6.5 cents on this grade, while at Philadelphia the market ranged from 6.75 to 7 cents.

Gasoline markets were unsettled in New England, apparently reflecting the lower tank car prices which were established in that section early in the week. Dealer tank wagon prices were reduced 0.5 cent at Boston Oct. 13. Other reductions, ranging from 0.1 cent to 1.8 cents, were made at Hartford, Portland, Manchester, and Burlington.

Kerosine movement from eastern terminals showed improvement during the week, some suppliers reported. Others said that demand was only fair. Unseasonably cold weather in part of western and northern New York state helped distributors movement in those sections. Tank car and barge prices showed little change.

California

Bunker Oil Reduced

LOS ANGELES, Oct. 16

CONTINUING the trend that had been evident for several weeks, diesel and fuel oils of all grades were easier on Pacific Coast petroleum markets the past week. Major company posted prices of diesel oil for ships' bunkers were reduced to $1.16 a barrel at Los Angeles harbor and to $1.21 a barrel at San Francisco Bay. This represented a reduction of 14 cents a barrel from the nominal quotations of $1.30 a barrel at Los Angeles, and of 9 cents a barrel from what was considered the prevailing price of $1.25 a barrel.

Increased offerings, rather than any decline in demand, was believed to be chiefly responsible for the price reduction. An increasing stock of cracked fuel oil in the hands of independent refiners that have recently installed cracking units was said to be a contributing factor in the situation.

Back door deliveries of major company gasoline to cut-rate service stations caused some trouble in highly competitive areas of the Los Angeles Basin. These deliveries were reported to be based on a tank wagon price of 12 cents a gallon, including 4 cents tax.

Under this influence, the disturbed areas showed a tendency to widen and threatened to disrupt the price structure of the whole metropolitan Los Angeles district. So far, however, they had no apparent effect on tank wagon quotations for major company third grade and independent competitive brands of gasoline. A majority of major companies were believed to be holding to their posted tank wagon price of 13 cents a gallon for deliveries in the Basin area.

No confirmation could be obtained of reports that negotiations were in progress by another group of independent marketers for a cargo of Gulf Coast gasoline, in addition to the one said to be now en route to Los Angeles. The prospective importers were understood to have obtained an option on marine terminal facilities at Los Angeles harbor.

Natural gasoline quotations were unchanged at from 7.75 to 8 cents a gallon, f.o.b. refinery. Demand was not as active and indications were that prices might move to lower levels.

Kerosine and kerosine distillate, in sympathy with other burning oils, were somewhat easier.

Export prices of diesel oil, being largely dependent on foreign market trends, were not affected by the reductions in bunker quotations. Comparatively little spot business was placed the past week in Pacific Coast seaboard markets, although a fair number of inquiries were received. Offshore tanker shipments during the past two weeks were reported below shipments the corresponding period of September.

Toledo Properties Sold

CHICAGO—The sale of Johnson Oil Refining Co. properties in Toledo to the Gulf Refining Co., was announced here by I. H. Johnson, president of the former company. The sale involved one bulk plant, and 13 service stations.

Mr. Johnson stated the properties were sold on account of the inability of Johnson to ship advantageously to Toledo from the company's refinery at Cleveland, Okla.

New Winter Oils

NEW YORK, Oct. 15.—Two new Veedol motor oils, to be known as Veedol 10W and 20W, and designed to provide instant starting of cold motors and perfect lubrication without congealing at 20 degrees below zero were announced today by Tide Water Oil Co. through John D. Collins, general sales manager. They are made of 100 per cent Pennsylvania crude.

Seven Are Indicted In Stock Deal

WASHINGTON, Oct. 19.—The Securities and Exchange Commission announced that indictments were returned today against seven individuals alleged to have defrauded a large number of persons in Michigan through misrepresentation and market manipulation in the 6 per cent convertible cumulative preferred stock of Old Dutch Refining Co., of Muskegon, Mich.

The indictments were returned, according to the SEC, in the U. S. District Court for the eastern district of Michigan, southern division.

Named as defendants, the announcement said, were Melvan D. Haynes, A. Paul Benners, Angelo Fraino, alias Angelo Franco, Leroy Brooks, alias John Bookbinder, Douglas F. Wood, Harry Goldman, and William Wiseman.

The alleged fraud, the SEC said, occurred between June 1, 1935, and June 1, 1936, and was accomplished through a corporation organized and dominated by the defendants.

On June 12, 1935, Melvan D. Haynes and Co. was incorporated under the laws of Michigan and on Feb. 25, 1936, the corporate name was changed to Benners, Owens and Co., the statement said.

The statement said further that the indictment charged this corporation entered into an agreement with Old Dutch Refining Co. of Muskegon, Mich., to sell to the public in behalf of the company 450,000 shares of 6 per cent convertible cumulative preferred stock, at $1 per share, 15 cents of which was to be retained by the corporation.

Thereafter, the indictment charges the defendants manipulated the market in these shares in various ways so as to cause the market price to rise to $3, the balance beyond the $1 contracted for with the refining company going to the defendants, according to the SEC announcement.

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22 Texas Oil Shippers Are Indicted

TYLER, Texas, Oct. 17.—Among indictments returned by the federal grand jury here the past week were the following:

J. B. Sowell, L. A. Rankin, A. C. Miles, H. F. Richardson, W. C. Adams, H. O. Radcliffe, Albert J. McDonald, J. E. G. Craig, Wallace and Roy Jenkins, D. D. Braly, Hamilton Jenkins, A. B. Gillis, E. E. Griffin, Ralph D. Holman, H. A. Montgomery, J. C. Jack, C. C. Dennis, W. E. Shackelford, Clyde V. Shuford, L. R. Thompson, C. Franks.

Charges against them pertain to reports and affidavits given to the Federal Tender Board in connection with applications to ship oil in interstate commerce.

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10-W *and* 20-W *Grades*

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CHAMPLIN

Motor Oils — Gasoline

USE CHAMPLIN OILS

PIPELINE TERMINALS
SUPERIOR-NEBR.
HUTCHINSON-KANSAS

GENERAL OFFICES
ENID OKLAHOMA

REFINERY TANK CAR MARKETS

Prices in cents per gallon, tank car lots, except where otherwise noted. Prices are those to domestic jobbers who resell to consumers. They do not represent inter-refinery sales, or sales for export. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Gasoline *and* Naphtha

Oklahoma	**Oct. 19**	**Oct. 12**	**Oct. 5**
48-54, 450 e.p. naphtha	*4.50 – 4.75	*4.50 – 4.75	*4.50 – 4.75
U. S. Motor gasoline, by octane numbers:			
62 octane and below..	4.625– 4.75	4.625– 4.75	4.50 – 4.75
63-67 octane.....	5.00 – 5.375	5.00 – 5.375	4.875– 5.375
68-70 octane (regular).	5.625– 5.75	5.625– 5.75	5.50 – 5.75
60-62, 400 e.p. gasoline	4.625– 4.75	4.625– 4.75	4.625– 4.75
64-66, 375 e.p. gasoline	5.00 – 5.125	5.00 – 5.125	5.00 – 5.125
68-70, 350-360 e.p. gasoline.....	*5.00 – 5.25	*5.00 – 5.25	*5.00 – 5.25

*Nominal.

Western Penna. (Quotations and/or sales prices to car unloaders)

Bradford-Warren:			
52-54 naphtha.....	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Motor gasoline:			
U.S. Motor (58-62°)	5.625– 5.75	5.625– 5.75	5.625– 5.75
Minimum 60 octane	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125
Minimum 65 octane	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375
Minimum 70 octane	.....	.....	.....
64-66, 390 e.p. gasoline	5.875– 6.00	5.875– 6.00	5.875– 6.00
68-70, 350-360 e.p. gasoline.....	6.125– 6.25	6.125– 6.25	6.125– 6.25
Other districts:			
52-54 naphtha.....	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
54-56 naphtha.....	5.625– 5.75	5.625– 5.75	5.625– 5.75
Motor gasoline:			
U.S. Motor (58-62°)	5.625– 5.75	5.625– 5.75	5.625– 5.75
Minimum 60 octane	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125
Minimum 65 octane	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375
Minimum 70 octane	.....	.....	.....
64-66, 390 e.p. gasoline	5.875– 6.00	5.875– 6.00	5.875– 6.00
68-70, 350-360 e.p. gasoline.....	6.125– 6.25	6.125– 6.25	6.125– 6.25

California (3c tax to be added to prices if used in state)

54-58 U.S. Motor, 437 e.p. for in-state shipment.....	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
54-58, U.S. Motor, 437 e.p. for outside state shipment.....	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
58-61, 375-400 e.p. gasoline, 65 octane and above.....	8.25 – 9.00	8.25 – 9.00	8.25 – 9.00

†***North Texas*** (F.o.b. Wichita Falls district for shipment to Texas and New Mexico destinations; Group 3 prices quoted on northern shipments).

U. S. Motor gasoline, by octane numbers:			
62 octane and below..	4.625– 4.75	4.625– 4.75	4.50 – 4.75
63-67 octane.....	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
68-70 octane (regular).	5.625– 5.75	5.625– 5.75	5.50 – 5.625
60-62, 400 e.p. gasoline	4.75	4.625– 4.75	4.625– 4.75
64-66, 375 e.p. gasoline	4.875– 5.00	4.875– 5.00	4.875– 5.00
68-70, 350-360 e.p. gasoline.....	5.00 – 5.125	5.00 – 5.125	5.00 – 5.125

Kansas (F.o.b. refinery, Kansas destination)

U. S. Motor gasoline, by octane numbers:			
62 octane and below..	4.875– 5.00	4.875– 5.00	4.75 – 4.875
63-67 octane.....	*	*	*
68-70 octane (regular).	5.875– 6.00	5.875– 6.00	5.75 – 5.875
60-62, 400 e.p. gasoline	4.875– 5.00	4.875– 5.00	4.75 – 5.00

*This price discontinued due to thinness of open market sales.

†***West Texas and New Mexico*** (F.o.b. W. Texas and N. Mex. refineries for unrestricted shipment)

U. S. Motor gasoline, by octane numbers:			
62 octane and below..	4.625– 4.75	4.625– 4.75	4.50 – 4.75
63-67 octane.....	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
68-70 octane (regular).	5.625– 5.75	5.625– 5.75	5.50 – 5.75

†***East Texas*** (F.o.b. East Texas refinery for unrestricted shipment)

U. S. Motor gasoline, by octane numbers:			
62 octane and below..	*4.625	*4.625	4.50 – 4.625
60-62, 400 e.p. gasoline	4.625– 4.75	4.625– 4.75	4.50 – 4.625

*Nominal.

North Louisiana (For Louisiana and Arkansas destination)

U. S. Motor gasoline:			
62 octane and below..	5.50	5.50	5.50
63-67 octane.....	6.25	6.25	6.25
68-70 octane (regular).	6.50	6.50	6.50

†Refiners generally receive from 0.25c to 0.5c per gallon more for gasoline and kerosine for local or differential territory shipment.

	Oct. 19	**Oct. 12**	**Oct. 5**
Arkansas (For Arkansas and Louisiana destination)			
U. S. Motor Gasoline:			
62 octane and below..	5.50	5.50	5.50
63-67 octane.....	6.25	6.25	6.25
68-70 octane (regular).	6.50	6.50	6.50
Ohio (Quotations of S. O. Ohio. Delivered any point in Ohio).			
U. S. Motor gasoline..	8.375	8.25	8.25
Above 65 octane no.	8.625	8.50	8.50

Natural Gasoline

(Prices shown f.o.b. Group 3 and Breckenridge represent majority of sales made on dates shown to blenders on the freight basis shown below, although shipments may originate in other manufacturing districts, such as East Texas, Panhandle, Southwest Texas or Kansas).

F.o.b. Group 3			
Grade 26-70.....	4.50	4.50	4.50
F.o.b. Breckenridge			
Grade 26-70.....	4.25	4.25	4.25
California (F.o.b. plants in Los Angeles basin)			
75-85, 375-390 e.p. for blending.....	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00

Kerosine

Western Penna. (Quotations and/or sales prices to car unloaders)

Bradford-Warren:			
45 w.w. kerosine.....	4.75 – 4.875	4.75 – 4.875	4.75 – 4.875
46 w.w. kerosine.....	4.875– 5.00	4.875– 5.00	4.875– 5.00
47 w.w. kerosine.....	5.00 – 5.125	5.00 – 5.125	5.00 – 5.125
Other districts:			
45 w.w. kerosine.....	4.75 – 4.875	4.75 – 4.875	4.75 – 4.875
46 w.w. kerosine.....	4.875– 5.00	4.875– 5.00	4.875– 5.00
47 w.w. kerosine.....	5.00 – 5.125	5.00 – 5.125	5.00 – 5.125
Oklahoma			
41-43 w.w. kerosine...	3.125– 3.25	3.125– 3.25	3.125– 3.25
42-44 w.w. kerosine...	3.25 – 3.50	3.25 – 3.50	3.25 – 3.375
Kansas (F.o.b. refinery Kansas destination)			
41-43 w.w. kerosine...	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
42-44 w.w. kerosine...	3.50 – 3.625	3.50 – 3.625	3.50 – 3.625

†***North Texas*** (F.o.b. Wichita Falls district or shipment to Texas and New Mexico destinations; Group 3 prices quoted on northern shipments).

41-43 w.w. kerosine...	3.125– 3.375	3.125– 3.375	3.125– 3.375

†***East Texas*** (F.o b. East Texas refinery for unrestricted shipment)

41-43 w.w. kerosine...	*3.125	*3.125	*3.125

*Nominal.

North Louisiana (For Louisiana and Arkansas destination)

41-43 w.w. kerosine...	3.75 – 3.875	3.75 – 3.875	3.75 – 3.875

Arkansas (For Arkansas and Louisiana destination)

41-43 w.w. kerosine...	*4.00 – 4.25	*4.00 – 4.25	*4.00 – 4.25

*Only one refiner quoting.

California (F.o.b. California refineries)

38-40 w.w. kerosine...	4.00 – 5.00	4.00 – 5.00	4.00 – 5.00

Gas *and* Fuel Oils

Western Penna. (Quotations and/or sales prices to car unloaders)

Bradford-Warren:			
36-40 fuel oil.....	4.375– 4.50	4.375– 4.50	4.375– 4.50
Other districts: (Excluding Pittsburgh District Prices)			
36-40 fuel oil.....	4.375– 4.50	4.375– 4.50	4.375– 4.50
Oklahoma (F.o.b. Oklahoma refineries)			
No. 1 white fuel oil...	3.125– 3.375	3.125– 3.25	3.00 – 3.25
No. 1 straw fuel oil...	3.00 – 3.25	3.00 – 3.125	2.875– 3.125
No. 2 straw fuel oil...	2.875– 3.00	2.875– 3.00	2.875– 3.00
No. 2 dark fuel oil....	2.875– 3.00	2.875– 3.00	2.875– 3.00
U. G. I. gas oil.....	2.50 – 2.625	2.50 – 2.625	2.50 – 2.625

(*Continued on next page*)

REFINERY TANK CAR MARKETS

Prices in cents per gallon, tank car lots, except where otherwise noted. Prices are those to domestic jobbers who resell to consumers. They do not represent inter-refinery sales, or sales for export. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Oklahoma (cont'd)

	Oct. 19	Oct. 12	Oct. 5
Fuel oils: (Prices per barrel of 42 U. S. gallons)			
28-30 zero	2.875– 3.00	2.875– 3.00	2.875
28-30	$1.05 –$1.10	$1.05 –$1.10	$1.00 –$1.10
24-26	$0.75 –$0.80	$0.75 –$0 80	$0.75 –$0.80
18-22	$0.725–$0.775	$0.725–$0.775	$0.725–$0.775
14-16	$0.625–$0.65	$0.625–$0.65	$0.625–$0.65
Kansas (F.o.b. refinery, Kansas destination)			
No. 1 p.w., fuel oil	3.375– 3.50	3.375– 3.50	3.125– 3.375
18-22 fuel oil (per bbl.)	$0.75 –$0.80	$0.75 –$0.80	$0.75 –$0.775
10-14 fuel oil (per bbl.)	$0.70 –$0.725	$0.70 –$0.725	$0.675–$0.725
North Texas (F.o.b. Wichita Falls district for shipment to Texas and New Mexico; Group 3 prices quoted on northern shipments).			
No. 1 straw, fuel oil	3.00 – 3.125	3.00 – 3 125	3.00 – 3.125
No. 1 white, fuel oil	3.125– 3.25	3.125– 3 25	3.125
U.G.I. gas oil	2.50 – 2.625	2.50 – 2.625	2.50 – 2.625
No. 2 fuel oil	*3.00	*3.00	*3.00
24-26 fuel oil (per bbl.)	$0.675–$0.70	$0.675–$0.70	$0.675–$0.70
18-22 fuel oil (per bbl.)	$0.60 –$0.65	$0.60 –$0.65	$0.60 –$0.65
*Nominal.			
West Texas (F.o.b. West Texas refineries for unrestricted shipment).			
No. 2 fuel oil	*3.00	*3.00	*3.00
18-22 fuel oil (per bbl.)	$0.675–$0.70	$0.675–$0.70	$0.675–$0.70
*Nominal.			
East Texas (F.o.b. East Texas refineries for unrestricted shipment).			
No. 1 white, fuel oil	*3.00 – 3.125	*3.00 – 3.125	*3.00 – 3.125
U.G.I. gas oil	2.50	2.50	2.50
No. 2 fuel oil	*3.00	*3.00	*3.00
24-26 fuel oil	$0.65 –$0.675	$0.65 –$0.675	$0.65 –$0.675
20-24 fuel oil	$0.65	$0.65	$0.65
*Nominal.			
North Louisiana (For Louisiana and Arkansas destination).			
No. 2 fuel oil	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
U.G.I. gas oil	2.625	2.625	2.625
20-24 fuel oil (per bbl.)	$1.05 –$1.10	$1.05 $1.10	$1.05 –$1.10
16-20 fuel oil (per bbl.)	$0.95 –$1.00	$0 95 –$1.00	$0.95 –$1.00
10-14 fuel oil (per bbl.)	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75
Arkansas (For Arkansas and Louisiana destination)			
No. 2 fuel oil	*3.25	3.25	3.25
28-30 gas oil, zero	*3.00	*3.00	*3.00
20-24 fuel oil (per bbl.)	$0.825–$0.875	$0.825 $0.875	$0.825–$0.875
16-20 fuel oil (per bbl.)	$0.725–$0.775	$0.725–$0.775	$0.725–$0.775
10-14 fuel oil (per bbl.)	$0.60 –$0.65	$0.60 –$0 65	$0.60 –$0.65
*Only one refiner quoting.			
California			
San Joaquin Valley, per bbl.:			
Grade C fuel oil	$0.70 –$0.85	$0.725–$0.85	$0.725–$0.85
Diesel fuel oil	$0.95 –$1.47	$0.95 –$1.47	$1.00 –$1.47
Stove distillate	$1.20 –$1.89	$1.20 –$1.89	$1.20 –$1.89
Los Angeles, per bbl.:			
Grade C fuel oil	$0.70 –$0.95	$0.70 –$0.95	$0.70 –$0.95
Diesel fuel	$0.95 –$1.47	$0.95 –$1.47	$1.00 –$1.47
Stove distillate	$1.20 –$1.89	$1.20 –$1.89	$1.20 –$1.89
San Francisco, per bbl.:			
Grade C fuel oil	$1.00	$1.00	$1.00
Diesel fuel	$1.68	$1.68	$1.68
Stove distillate	$2.10	$2.10	$2.10

Neutral Oils

Western Penna. (Quotations and/or sales prices to car unloaders)

Viscous Neutrals (Viscosity at 70° F.)

200 Vis. (180 at 100°) No. 3 color, 420-425 flash:			
0 pour test	23.50 –24.00	23.50 –24.00	23.50 –24.00
10 pour test	22.50 –23.00	22.50 - 23.00	22.50 –23.00
15 pour test	22.00 –22.50	22.00 –22.50	22.00 –22.50
25 pour test	21.00 –21.50	21.00 –21.50	21.00 –21.50
180 Vis. (165 at 100) No. 3 color, 410-415 flash:			
25 pour test	20.00 –20.50	20.00 –20.50	20.00 –20.50
150 Vis. (143 at 100) No. 3 color, 400-405 flash:			
0 pour test	20.00 –20.50	20.00 –20.50	20.00 –20.50
10 pour test	19.00 –19.50	19.00 –19.50	19 00 –19.50
15 pour test	18.50 –19.00	18.50 –19.00	18.50 –19.00
25 pour test	17.50 –18.00	17.50 –18.00	17.50 –18.00

South Texas (F.o.b. South Texas refineries, for domestic shipment)

Vis. Color			
Pale Oils:	(*Viscosity at 100° F.; pour test 0*)		
100 No. 1½-2½	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
200 No. 2-3	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
300 No. 2-3	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
500 No. 2½-3½	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
750 No. 3-4	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
1200 No. 3-4	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
2000 No. 4	9.25 –10.00	9.25 –10.00	9.25 –10.00
Red Oils:			
200 No. 5-6	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
300 No. 5-6	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
500 No. 5-6	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
750 No. 5-6	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
1200 No. 5-6	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
2000 No. 5-6	9.25 –10.00	9.25 –10.00	9.25 –10.00

Note: South Texas red oil prices shown above cover oils with green cast; blue cast red oils are slightly lower in some cases.

Mid-Continent (Viscosity at 100° F.; F.o.b. Tulsa basis. Prices represent majority of quotations)

0 to 10 Pour Point:			
Pale Oils			
Vis. Color			
60-85—No. 2	5.25	5.25	5.25
86-110—No. 2	5.75	5.75	5.75
150—No. 3	8.50	8.50	8.50
180—No. 3	9.50	9.50	9.50
200—No. 3	10.00	10.00	10.00
250—No. 3	11.00	11.00	11.00
280—No. 3	12.00	12.00	12.00
300—No. 3	12.50	12.50	12.50
Red Oils:			
180—No. 5	8.50	8.50	8.50
200—No. 5	9.00	9.00	9.00
250—No. 5	10.00	10.00	10.00
280—No. 5	11.00	11.00	11.00
300—No. 5	11.25	11.25	11.25

Note: Viscous and non-viscous oils, 15 to 25 pour point are generally quoted 0.5c under 0 to 10 pour point oils. Viscous oils (150-300 vis.), No. 4 color, are generally quoted 0.5c above No. 5 color oils.

Chicago (F.o.b. Chicago District refineries) (Vis. at 100° F.)

Pale Oils, *15 to 30 pour point:			
Vis. Color			
60-85—No. 2	6.50	6.50	6.50
86-110—No. 2	7.00	7.00	7.00
150—No. 3	9.00	9.00	9.00
180—No. 3	10.00	10.00	10.00
200—No. 3	10.50	10.50	10.50
250—No. 3	11.50	11.50	11.50
Red Oils, *15 to 30 Pour Point:			
180—No. 5	9.00	9.00	9.00
200—No. 5	9.50	9.50	9.50
250—No. 5	10.50	10.50	10.50
280—No. 5	11.50	11.50	11.50
300—No. 5	12.00	12.00	12.00

*Oils with 0-10 pour point are quoted at 0.5c higher. To obtain prices delivered in Chicago, add 0.25c per gal.

California (F.o.b. California refineries; Viscosity at 100° F.)

All neutral oils, 11.5c per gal. in tank car lots; and 13.5c in iron bbls., to refiners only, excluding federal tax.

Cylinder Stocks

Mid-Continent (F.o.b. Tulsa basis. Prices represent quotations and sales)

Bright Stocks:			
190-200 Vis. at 210° D	20.00	20.00 -21.00	21.00
150-160 Vis. at 210° D:			
0 to 10 pour test	17.00	17.00 –18.00	18.00
10 to 25 pour test	16.50	16.50 –17.50	17.50
25 to 40 pour test	16.00	16.00 –17.00	17.00
150-160 Vis. at 210° E	16.00	16.00 –17.00	17.00
120 Vis. at 210° D:			
0 to 10 pour test	16.00	16.00 –17.00	17.00
10 to 25 pour test	15.50	15.50 –16.50	16.50
25 to 40 pour test	15.00	15.00 –16.00	16.00
600 Stm. Rfd. Dark Green	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00
600 Stm. Rfd. Olive Green	6.75 – 8.00	6.75 – 8.00	6.75 – 8.00
631 Steam Refined	*13.00	*13.50	*13.50
Black Oil	3.25 – 3.375	3.25 – 3.375	3.25 – 3.375

*Only one refiner quoting.

Chicago (F.o.b. Chicago district refineries) (Viscosity at 210°)

Unfiltered Steam Refined:			
140	9.00	9.00	9.00
160	10.00	10.00	10.00
200	11.00	11.00	11.00
Bright stocks, 160 vis. at 210 No. 8 color:			
0 to 10 pour point	19.75	19.75	19.75
15 to 25 pour point	19.25	19.25	19.25
30 to 40 pour point	18.75	18.75	18.75
E filtered Cyl. Stock	14.50	14.50	14.50

To obtain prices delivered in Chicago, add 0.25c per gal.

Western Penna. (A.S.T.M. tests; quotations and/or sales prices to car unloaders)

600 stm. rfd. filterable	12.50 –13.00	12.50 –13.00	12.75 –13.00
650 steam refined	14.00 –14.50	14.00 –14.50	14.50 –15.00

(*Continued on page* 90)

Get ready NOW *for* NEW *Car demands*

'37 models

DEMAND PRODUCTS OF HIGHEST SPECIFICATIONS!

Jobbers should prepare NOW to sell a new, profitable market.

Early announcements by automobile manufacturers indicate that within 30 days, many new cars will be on the road. These 1937 models will make exacting demands on motor oils and gasolines.

To enable Jobbers to meet new car requirements The Ohio Oil Company offers petroleum products of HIGHEST specifications, ready for immediate shipment. Our MARATHON "Endurance" Motor Oils are sold in cans and drums, or we can make bulk compartment-car shipments of all S.A.E. grades in the quantities you want. These Oils meet the maximum specifications of the Society of Automotive Engineers. They are refined exclusively from RANGER paraffin-base crude.

Our MARATHON "Timed" Gasoline is a high-octane motor fuel of correct specifications for the 1937 model cars. The specifications of this Gasoline result in "timing" the duration of each explosion, so that it delivers a smooth sustained THRUST to the piston, not a hammer-like blow. Correct "timing" produces smoother motor performance and increased power.

It will pay Jobbers to obtain suitable stocks of MARATHON "Endurance" Motor Oils and MARATHON "Timed" Gasoline, immediately, for the new car market. Phone, wire or write us about your requirements.

THE OHIO OIL COMPANY

Tulsa, Okla. Ft. Worth, Texas Findlay, Ohio

MARATHON PRODUCTS

REFINERY TANK CAR MARKETS

Prices in cents per gallon, tank car lots, except where otherwise noted. Prices are those to domestic jobbers who resell to consumers. They do not represent inter-refinery sales, or sales for export. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Cylinder Stocks (cont'd)

Western Pennsylvania (cont'd)

	Oct. 19	Oct. 12	Oct. 5
600 flash	15.00 –15.50	15.00 –15.50	15.50 –16.00
630 flash	17.00 –17.50	17.00 –17.50	17.50 –18.00
600 Warren E.	16.00 –16.50	16.00 –16.50	16.00 –16.50
Bright stock, 145-155 vis. at 210°, 540-550 flash, No. 8 color:			
10 pour test	23.50 –24.00	23.50 –24.00	23.50 –24.00
15 pour test	22.50 –23.00	22.50 –23.00	22.50 –23.00
20 pour test	21.50 –22.00	21.50 –22.00	21.50 –22.00
25 pour test	20.50 –21.00	20.50 –21.00	20.50 –21.00

Petrolatums

Western Penna. (Per pound, in barrels, carload lots, f.o.b. Penna. refinery. In tank cars, 0.5c per pound less. Quotations are from majority of petrolatum makers).

Snow White	6.625	6.625	6.625
Lily White	5.625	5.625	5.625
Cream White	4.625	4.625	4.625
Light Amber	2.75	2.75	2.75
Amber	2.50	2.50	2.50
Red	2.00 – 2.125	2.00 – 2.125	2.00 – 2.125

Wax

	Oct. 19	Oct. 12	Oct. 5
Western Penna. (Per pound, f.o.b. New York)			
122-124 wh. crude scale, A.m.p.	2.40 – 2.45	2.40 – 2.45	2.40 – 2.45
124-126 wh. crude scale, A.m.p.	2.45 – 2.50	2.45 – 2.50	2.45 – 2.50
Oklahoma (Per pound in barrels; in a few instances, per pound in burlap bags; f.o.b. Oklahoma refineries)			
124-126 wh. crude scale, A.m.p.	2.50 – 2.60	2.50 – 2 60	2.50 – 2.60
Chicago (F.o.b. Chicago district refineries, in cents per pound, in bags, carload lots. Melting points are E.M.P. (A.S.T.M.) methods; add 3° F. to convert into A.m.p.)			
Fully refined:			
122-124	4.65 – 4.75	4.65 – 4.75	4.65 – 4.75
125-127	4.90 – 5.00	4.90 – 5.00	4.90 – 5.00
127-129	5.05 – 5.15	5.05 – 5.15	5.05 – 5.15
130-132	*5.45 – 5.55	*5.45 – 5.55	*5.45 – 5.55
132-134	*5.70 – 5.80	*5.70 – 5.80	*5.70 – 5.80
135-137	*6.45 – 6.55	*6.45 – 6.55	*6.45 – 6.55

*Same prices quoted in bags or slabs loose.

MID-WESTERN TANK CAR MARKETS

Following prices are in cents per gallon, except where otherwise noted, in tank car lots, representing majority of sales of products made by Chicago sellers, from legally produced crude to jobbers on Group 3 freight basis, although shipments may originate in other South-western or Mid-western refining districts. Prices do not include state or federal taxes.

Gasoline

U. S. Motor gasoline:	Oct. 19	Oct. 12	Oct. 5
62 octane and below	4.50 – 4.75	4.50 – 4.75	4.375– 4.75
63-67 octane	4.875– 5.25	4.875– 5.25	4.75 – 5.25
68-70 octane (regular)	5.375– 5.625	5.375– 5.625	5.25 – 5.50
60-62, 400 e.p.	4.625– 4.75	4.625– 4.75	4.50 – 4.75
64-66, 375 e.p.	5.00 – 5.125	5.00 – 5.125	5.00 – 5.125
68-70, 350-360 e.p.	5.125– 5.25	5.125– 5.25	5.125– 5.25

Kerosine

41-43 w.w.	3.125– 3.25	3.125– 3.25	3.125– 3.25
42-44 w.w.	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50

Fuel *and* Gas Oils

Domestic:			
No. 1 prime white	3.125– 3.25	3.125 3.25	3.00 – 3.25
No. 1 straw	3.00 – 3.125	3.00 – 3.125	2.875– 3.125
No. 2 straw	2.875– 3.00	2.875– 3.00	2.875– 3.00
No. 2 dark	2.875– 3.00	2.875– 3.00	2.875– 3.00
No. 3	2.875	2.875	2.875
No. 4 (per bbl.)	$0.95 –$1.00	$0.95 –$1.00	$0.95 –$1.00
No. 5 (per bbl.)	$0.725–$0.75	$0.725–$0.75	$0.70 –$0.75
Industrial:			
No. 4 (per bbl.)	$0.85 –$0.90	$0.85 –$0.90	$0.85 –$0.90
No. 5 (per bbl.)	$0.65 –$0.675	$0.65 –$0.675	$0.625–$0.675
No. 6 (per bbl.)	$0.575–$0.60	$0.575–$0.60	$0.55 –$0.60
U.G.I. gas oil	2.50 – 2.625	2.50 – 2.625	2.50 – 2.625

Naphtha *and* Solvent

Stoddard solvent	6.875	6.875	6.875
V. M. & P. naphtha	7.375	7.375	7.375
Cleaners' naphtha	7.375	7.375	7.375
Mineral spirits	6.375	6.375	6.375
Rubber solvent	7.375	7.375	7.375
Lacquer diluent	8.375	8.375	8.375

DAILY GASOLINE PRICES

Daily range of gasoline prices (cents per gallon) in tank cars, as reported in PLATT'S OILGRAM, (Week Ended Oct. 16, 1936)

	Oct. 12	Oct. 13	Oct. 14	Oct. 15	Oct. 16
U. S. Motor, 62 octane and below:					
East Texas	†4.625	†4.625	†4.625	†4.625	†4.625
*North Texas	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75
West Texas	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75
Oklahoma	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75
Mid-Western (Group 3 basis)	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75
U. S. Motor, 63-67 octane:					
*North Texas	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
West Texas	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
Oklahoma	5.00 – 5.375	5.00 – 5.375	5.00 – 5.375	5.00 – 5.375	5.00 – 5.375
Mid-Western (Group 3 basis)	4.875– 5.25	4.875– 5.25	4.875– 5.25	4.875– 5.25	4.875– 5.25
U. S. Motor, 68-70 octane (regular):					
*North Texas	5.625– 5.75	5.625– 5.75	5.625– 5.75	5.625– 5.75	5.625– 5.75
West Texas	5.625– 5.75	5.625– 5.75	5.625– 5.75	5.625– 5.75	5.625– 5.75
Oklahoma	5.625– 5.75	5.625– 5.75	5.625– 5.75	5.625– 5.75	5.625– 5.75
Mid-Western (Group 3 basis)	5.375– 5.625	5.375– 5.625	5.375– 5.625	5.375– 5.625	5.375– 5.625
Motor Gasoline, 60-64 octane					
New York harbor	6.50	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
Philadelphia district	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
Baltimore district	6.50	6.50	6.50	6.50	6.50
Motor Gasoline, 65 octane & above					
New York harbor	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
Philadelphia district	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
Baltimore district	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
U. S. Motor Gasoline, 58-62°					
Bradford-Warren (Western Penna.)	5.625– 5.75	5.625– 5.75	5.625– 5.75	5.625– 5.75	5.625– 5.75
Other districts (Western Penna.)	5.625– 5.75	5.625– 5.75	5.625– 5.75	5.625– 5.75	5.625– 5.75
Motor Gasoline, Minimum 60 octane					
Bradford-Warren (Western Penna.)	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125
Other districts (Western Penna.)	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125
Motor Gasoline, Minimum 65 octane					
Bradford-Warren (Western Penna.)	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375
Other districts (Western Penna.)	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375

*For shipment to Texas and New Mexico destinations; Group 3 prices are quoted on northern shipments.
†Nominal.

N. P. N. says this is an advertisement but we say it's national petroleum news.

The same station, same location, same personnel. Nothing changed except the sign which showed that Stockfleth was selling a new gasoline . . . and almost overnight sales jumped 160 per cent. Mr. R. C. Stockfleth, president of the company which bears his name, thought that 5000 gallons a month with his former brand of gasoline was a good record. Now that they are doing 13,000 gallons a month with Phillips 66 Poly Gas he is confidently shooting for the 20,000-gallon-a-month mark.

What New Trick Lifted Sales from 5,000 to 13,000 Gallons Per Month?

SCOTTSBLUFF, Nebraska

WITHOUT any of the usual hullabaloo or ballyhoo, without giving glassware, without putting up pennants, without driveway drives—the Stockfleth Oil Co. uncovered a secret of success as simple as it is certain.

They took on Phillips 66 and changed their signs accordingly. The results were nothing short of astonishing. Mr. Stockfleth's own words are: "To say that I have enjoyed remarkable profits from the sale of Phillips products would be putting it mildly."

Tap the Reservoir of Consumer Acceptance

The standout quality of Phillips 66 Poly Gas; the Phillips advertising which experts say is "the finest selling copy in the industry"; and above all the word-of-mouth enthusiasm of users; all have built a tremendous consumer acceptance.

Everywhere the story is the same. Once the Phillips 66 sign goes up, how the business rolls in! Motorists who have been passing up the station day after day suddenly swing up to the pump. And the reason is they are *presold*. Thousands upon thousands of additional car owners are merely waiting for a convenient Phillips station to appear in their neighborhoods. As soon as it does, they turn into steady customers.

Hundreds upon hundreds of dealers have proved the truth of these statements, with real profit to themselves as well as to the jobbers who sold them. But read the record, just as Mr. Stockfleth writes it:

"I have been handling Phillips products for the past three years and to say that I have enjoyed remarkable profits from the sale of your products would be putting it mildly. Prior to my connection with Phillips Petroleum Company, I was handling a standard brand of gasoline and oils that had and still has national recognition. I thought I was making real progress and profits with them until I had changed to Phillips. My average sales per month with them would average approximately 5,000 gallons, and to my knowledge, this was an exceptional job. But the awakening came and I took on Phillips Products and immediately increased my sales per month to an average of 13,000 gallons.

"My first reaction to the remarkable increase was that a new product was being introduced in a new territory and I was quite certain that after the newness wore off, my output would gradually decrease to at least 7,500 gallons per month. But contrary to the general rule, my output has been holding up to the average of 13,000 gallons and I am convinced we have been doing only a fair job and have set our goal to 20,000 gallons per month.

"Since the introduction of Polymerized Gasoline, our sales have increased materially because of the public acceptance of this marvelous new motor fuel. Each day we see new faces across our station and hear remarks about Phillips products that really convince us of continued success with your products.

"Twenty thousand gallons per month, average, is my goal for the remainder of this year, and with the continued cooperation of the Phillips Petroleum Company and my ever increasing buying public, I know that it will be an easy accomplishment."

Get All the Facts

Good jobbers, who are perhaps good friends of yours, will gladly tell you that Phillips is a fine crowd to do business with. If you are interested in brass-tack talk about increasing your volume we will gladly give you all the facts.

We will show you what others have accomplished. We will outline exactly the co-operation you will get. We will make our story brief and to the point, and perhaps your resulting success will some day soon appear in these pages. Wire, write or phone

PHILLIPS PETROLEUM CO.
Bartlesville, Oklahoma

Chicago Minneapolis Peoria Indianapolis
Des Moines Omaha St. Louis
Kansas City Wichita Tulsa Amarillo

TANK WAGON, SERVICE STATION MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect Oct. 19, 1936, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

S. O. New Jersey

Essolene

	Consumer Tank Car	Dealer T.W.	Taxes	Posted S.S.	Kerosine T.W.
Atlantic City, N. J.	7.5	9	4	*	9
Newark, N. J.	7.5	9	4	*	7.5
Annapolis, Md.	8.1	9.6	5	*	10
Baltimore, Md.	7.5	9	5	*	8
Cumberland, Md.	9.1	11.6	5	*	10
Washington, D. C.	7.5	9	3	15.5	9
Danville, Va.	8.7	11.2	6	20.7	12.9
Norfolk, Va.	7.5	10	6	19.5	11.3
Petersburg, Va.	7.8	10.3	6	19.8	11.7
Richmond, Va.	7.8	10.3	6	19.8	11.7
Roanoke, Va.	9	11.5	6	21	12.9
Charleston, W. Va.	8.3	10.8	5	*	12.6
Parkersburg, W. Va.	7.6	10.1	5	*	11.2
Wheeling, W. Va.	8.5	10	5	*	12.2
Charlotte, N. C.	8.9	11.4	7	*	12.6
Hickory, N. C.	9.4	11.9	7	22.4	13
Mt. Airy, N. C.	9.2	11.7	7	*	12.8
Raleigh, N. C.	8.5	11	7	*	12.1
Salisbury, N. C.	9	11.5	7	*	12.7
Charleston, S. C.	7.5	10	7	20.5	11.1
Columbia, S. C.	8.5	11	7	21.5	12.1
Spartanburg, S. C.	9.2	11.7	7	22.2	12.9

*S. O. New Jersey transferred stations to dealers: no prices available.

Price basis to undivided dealers: Dealer t.w. price less 0.5c per gal.

Price basis to commercial consumers: Beginning Feb. 11, 1935, all new commercial consumers will be signed on following differentials over tank car price, on yearly purchases: up to 35,999 gals., 2.5c over t.c.; 36,000 to 119,999 gals., 2c; 120,000 to 239,999 gals., 1.5c; 240,000 to 479,999 gals., 1c; and over 480,000 gals., 0.5c.

Above prices apply only when deliveries are made in lots of 50 or 100 gals. at one time, depending on region in which deliveries are made.

If deliveries are made in less than these minimum quantities, s.s. price at time and place of delivery applies.

Non-contract customers will be billed at 2.5c over tank car price at time and place of delivery.

Kerosine Discount: 1c off t.w. price for 25 gals. or more, under contract thru territory (Baltimore City contract not necessary) except no discount in state of New Jersey.

Socony-Vacuum Oil Co., Inc.

(*S. O. New York Division*)

Socony Mobilgas

	"Split" Dealer T.W.	Taxes	Total "Split" Dealer T.W.	†S.S.	Kerosine T.W.
Metropolitan N. Y. City:					
Boroughs of Manhattan, Bronx and Brooklyn (Kings and Queens)	8.7	*4	12.7	...	7.25
Borough of Richmond (Staten Is.)	9	*4	13	...	7.25
Albany, N. Y.	8.7	4	12.7	...	7.75
Binghamton, N. Y.	10	4	14	...	9
Buffalo, N. Y.	9.5	4	13.5	...	8.25
Jamestown, N. Y.	10	4	14	...	8.25
Plattsburg, N. Y.	9.7	4	13.7	...	8.75
Rochester, N. Y.	9.5	4	13.5	...	8.25
Syracuse, N. Y.	9.5	4	13.5	...	8.75
Danbury, Conn.	9	4	13	...	8
Hartford, Conn.	8.9	4	12.9	...	7
New Haven, Conn.	8.8	4	12.8	...	7.5
Bangor, Me.	10	5	15	...	8
Portland, Me.	9.5	5	14.5	...	7.75
Boston, Mass.	8.5	4	12.5	...	7.5
Concord, N. H.	10.5	5	15.5	...	8.5
Lancaster, N. H.	11.5	5	16.5	...	9.5
Manchester, N. H.	10	5	15	...	8
Providence, R. I.	8.5	3	11.5	...	7.25
Burlington, Vt.	9.7	5	14.7	...	8.75
Rutland, Vt.	10	5	15	...	8.5

*Plus 2% city sales tax computed at time of each sale.

†Socony-Vacuum transferred stations to dealers; no prices available.

Price basis to undivided dealers: 0.5c less than "split" dealer t.w.

To commercial consumers: Effective Feb. 4, 1935, covering yearly purchases, billed at posted tank car price, plus these differentials: 2.5c for delivery of 1,200 to 36,000 gals.; plus 2c, for 36,000 to 120,000 gals.; plus 1.5c for 120,000 to 240,000 gals.; plus 1c for 240,000 to 480,000 gals.; plus 0.5c for 480,000 gals. and over. Those buying less than 1,200 gals. yearly, get retail s.s. price.

Atlantic Refining

Atlantic White Flash Plus Gasoline

	Total T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
Philadelphia, Pa.	10	5	15	16	9.5
Pittsburgh, Pa.	12.5	5	17.5	19.5	9
Allentown, Pa.	11.75	5	16.75	**	9.5
Erie, Pa.	12.5	5	17.5	18.5	8
Scranton, Pa.	11.75	5	16.75	**	10
Altoona, Pa.	12.5	5	17.5	19.5	9.5
Dover, Del.	12	5	17	**	10
Wilmington, Del.	11	5	16	**	9
Boston, Mass.	9	4	13	16.5	7
Springfield, Mass.	9	4	13	16.5	7.5
Worcester, Mass.	10	4	14	17.5	7.75
Fall River, Mass.	9	4	13	16.5	7
Hartford, Conn.	9	4	13	16.5	7
New Haven, Conn.	9	4	13	16.5	7.5
Providence, R. I.	9	3	12	15.5	7
Atlantic City, N. J.	10.3	4	14.3	17	9
Camden, N. J.	10	4	14	16.5	8
Trenton, N. J.	10.3	4	14.3	17	8
Annapolis, Md.	10.6	5	15.6	**	9.5
Baltimore, Md.	10	5	15	**	8
Hagerstown, Md.	11.1	5	16.1	**	10
Richmond, Va.	10.3	6	16.3	**	11.7
Wilmington, N. C.	10.1	7	17.1	**	11.3
Brunswick, Ga.	10.5	7	17.5	**	*12.5
Jacksonville, Fla.	10	8	18	**	11.5

*Georgia has kerosine tax of 1c per gal., not included in above price.

**Atlantic Refining transferred stations to dealers; no prices available.

Dealer discounts: on Atlantic White Flash Plus gasoline, thru territory, except Philadelphia: divided dealers, price equal to 3.5c off posted s.s. price; undivided dealers, price equal to 4c off posted s.s. price; authorized dealers contracts previous to Aug. 19, 1933, price equal to 3c less than posted s.s. price, plus 1c rental; at Philadelphia, delivered t.w. price to 100% dealers 8c, and to split dealers, 8.5c, effective Oct. 7.

Price basis to commercial consumer: Effective Oct. 1, 1935, on yearly gasoline purchases based on posted tank car prices plus following amounts: 1,200 to 36,000 gals., 2.5c over t.c.; 36,000 to 120,000 gals., 2c; 120,000 to 240,000 gals., 1.5c; 240,000 to 480,000 gals., 1c; 480,000 gals. and over, 0.5c.

S. O. Ohio

Sohio X-70 Gasoline

	Consumer T.W.	Tax	Total Consumer T.W.		
Ohio Statewide	12.5	5	17.5	‡	*13.5
Counties below statewide gasoline schedule: Ashtabula, Butler, Champaign, Clarke, Clermont, Columbiana, Darke, Fayette, Fairfield, Franklin, Greene, Hamilton, Jefferson, Knox, Licking, Lucas, Madison, Mahoning, Miami, Montgomery Pickaway, Preble, Ross, Trumbull and Warren:	11.5	5	16.5	....	....
Paulding	11	5	16	....	....

Renown (Third Grade Gasoline)

Ohio Statewide	12	5	17	‡	....
Counties below statewide gasoline schedule: Butler, Clermont, Darke, Hamilton, Greene, Miami, Montgomery, Preble and Warren:	11.5	5	16.5	....	....
Ashtabula, Champaign, Clarke, Columbiana, Fairfield, Fayette, Franklin, Jefferson, Knox, Licking, Lucas, Madison, Mahoning, Pickaway, Ross, and Trumbull	11	5	16	....	....
Paulding	9	5	14	....	....
Counties above statewide schedule: Hocking and Summit	12.5	5	17.5	....	....

Kerosine Prices

(Off Statewide Level)

Kerosine prices are off statewide level in the following counties:

Gallia *13

Allen, Ashtabula, Auglaize, Champaign, Columbiana, Darke, Fulton, Hancock, Hardin, Henry, Logan, Mahoning, Mercer, Portage, Preble, Putnam, Shelby, Summit, Trumbull, Union, Van Wert and Wyandotte *12.5

Defiance and Paulding *12

Statewide Prices to Resellers & Agents

(These gasoline prices are based on low of Group 3, 68-70 octane, gasoline tank car market as published in Platt's Oilgram, to the nearest 0.5c).

Including taxes	†Undivided Accounts	Divided Accounts	**Authorized Agents
Sohio X-70	16	16.5	16.5
Renown (3rd grade)	15.5	16	16

‡Effective Sept. 16, 1936, S. O. Ohio began leasing service stations to dealers. No statewide s.s. price available although the company does post s.s. prices locally at points where it still operates stations.

Sales tax: Ohio's 3% sales tax, effective Jan. 27, 1935, is added "where assessable, to regular posted prices," S. O. Ohio says.

*Kerosine prices include 1c state tax.

†Excluding authorized agents.

**Excluding 0.5c rental.

Discounts to commercial contract tank wagon consumers only: on all motor gasolines, thru Ohio, effective Sept. 16, 1936, except counties mentioned hereafter, off posted t.w. price, on deliveries per month: 1,000 to 9,999 gals., 1.5c per gal.; 10,000 gals. and over, 2.5c. Under 1,000 gals., posted t.w. price. Single deliveries of less than 25 gals., on X-70 and Ethyl, 2c above consumers, t.w. price; Renown, 1c above. Q. D. A. is off statewide schedule in the following counties: Allen, Ashtabula, Auglaize, Columbiana, Darke, Defiance, Franklin, Fulton, Hamilton, Hancock, Hardin, Henry, Jefferson, Knox, Logan, Lucas, Mahoning, Medina, Mercer, Pickaway, Putnam, Ross, Shelby, Trumbull, Union, Van Wert and Williams: for this information, write National Petroleum News.

Discounts on kerosine: to dealers and commercial consumers, 3c per gal. off t.w. price, any quantity.

S. O. Kentucky

Crown Gasoline

	Total T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
Lexington, Ky.	12	6	18	20	11
Louisville, Ky.	12	6	18	20	10
Paducah, Ky.	10.75	6	16.75	17.5	8
Covington, Ky.	11.5	6	17.5	19.5	10.5
Jackson, Miss.	13	7	20	22	*12.5
Vicksburg, Miss.	12.5	7	19.5	**	*12.5
Birmingham, Ala.	13	*8	21	23	12
Mobile, Ala.	11	*9	20	21	11
Montgomery, Ala.	11.5	*9	20.5	21	*14
Macon, Ga.	13	7	20	22	*14
Atlanta, Ga.	13.5	7	20.5	22.5	*13
Augusta, Ga.	12.5	7	19.5	21	*13.5
Savannah, Ga.	11.5	7	18.5	20.5	*12.5
Jacksonville, Fla.	10	8	18	20	11.5
Miami, Fla.	11.5	8	19.5	21.5	12.5
Tampa, Fla.	10	8	18	20	11.5
Pensacola, Fla.	12.5	*9	21.5	23.5	12

Kyso (Third Grade)

Lexington, Ky.	10.5	6	16.5	18	....
Louisville, Ky.	10.5	6	16.5	18	....
Paducah, Ky.	7.5	6	13.5	14	....
Covington, Ky.	10	6	16	17.5	....
Jackson, Miss.	11.5	7	18.5	20	....
Vicksburg, Miss.	9.5	7	16.5	**	....
Birmingham, Ala.	11	*8	19	20	....
Mobile, Ala.	8.5	*9	17.5	18	....
Montgomery, Ala.	8.5	*9	17.5	18	....
Atlanta, Ga.	10.5	7	17.5	18	....
Augusta, Ga.	9	7	16	16.5	....
Macon, Ga.	10	7	17	17.5	....
Pensacola, Fla.	10.75	*9	19.75	21	....

Dealer Discount: off posted s.s. price, on Crown and Crown Ethyl gasolines to "undivided" dealers 4c; on Kyso, 3c. To "divided" dealers: Crown and Ethyl, 3.5c, and Kyso, 2.5c, all effective on or about Jan. 1, 1934.

Discounts to tank wagon consumers: all single deliveries of 50 gals. or less, get posted s.s. price: all single deliveries of 50 gals. or more, to be billed at posted t.w. price, plus following discounts, off posted t.w. price: Ethyl and Crown gasoline, 50 to 2,999 gals. monthly, 1.5c; Kyso, 1c; 3,000 to 24,999 gals., Ethyl and Crown, 2c; Kyso, 1.5c; 25,000 gals. or more, Ethyl and Crown, 3c; and Kyso, 2.5c.

Above prices include these inspection fees on both gasoline and kerosine, per gallon, figured on basis of 50 gallons per barrel:

Alabama, 1/40c on gasoline, 1/2c on kerosine; Arkansas, 1/5c per gal. in a single barrel, 1/20c per gal. in bulk; Florida, 1/8c; Illinois, 3/100c; Indiana, 1/2c per gal in a single barrel; 3/10c per gal. in lots of 2 to 10 bbls., 1/5c for 10 to 50 bbls., 2/25c for over 50 bbls.; Kansas, 1/50c, (3/50c can be charged to meet inspection department expenses); Louisiana, 1/32c; Minnesota, 1/25c; Missouri, 3/100c; Nebraska, 3/100c, Nevada, gasoline, 1/20c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 2/25c per gal., in lots of more than 50 bbls., 1/5c in lots less than 50 bbls.; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c; and Wisconsin, 1/25c.

Kerosine inspection fee only: Iowa, 2/25c; Michigan, 4/5c per gal. for first 2 bbls.; 3/5c for next 3; 2/5c for next 5; 3/10c for next 15, and 1/5c per gal. in lots over 25 bbls.

TANK WAGON, SERVICE STATION MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect Oct. 19, 1936, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

S. O. Kentucky (Cont'd)

**Taxes*: in the tax column is included these city and county gasoline taxes at the following points: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Mississippi kerosine prices include 1c state tax. Montgomery kerosine price includes 1c city tax.

**S. O. Kentucky transferred stations to dealers; no prices available.

S. O. Indiana

	Red Crown Tax	Dealer Prices Red Crown Total T.W.	Red Crown T.W.	Stanolind T.W.	Kerosine T.W.
Chicago, Ill.	4	15.4	13.4	13.4	9.2
Decatur, Ill.	4	15.4	13.9	13.9	9.2
Joliet, Ill.	4	14.5	13.9	13	9.2
Peoria, Ill.	4	15.4	13.9	13.9	9.2
Quincy, Ill.	4	15.2	13.7	13.7	9.0
Indianapolis, Ind.	*5	17.3	15.8	15.8	‡13
Evansville, Ind.	*5	17.1	15.6	15.1	‡13.7
South Bend, Ind.	*5	17.5	16	16	‡13
Detroit, Mich.	4	15.0	13.5	13.0	8.8
Grand Rapids, Mich.	4	15.4	13.9	13.9	9.3
Saginaw, Mich.	4	15.6	14.1	14.1	10.1
Green Bay, Wis.	5	17.1	15.6	15.6	9.9
Milwaukee, Wis.	5	16.7	15.2	13.4	9.5
La Crosse, Wis.	5	16.8	15.3	15.3	9.6
Minneapolis-St. Paul	4	15.8	14.3	14.3	9.6
Duluth, Minn.	4	16.2	14.7	14.7	10
Mankato, Minn.	4	15.8	14.3	14.3	9.6
Des Moines, Ia.	4	15.2	13.7	13.3	9.0
Sioux City, Ia.	4	15.4	13.9	13.9	9.2
Davenport, Ia.	4	15.4	13.9	13.9	9.2
Mason City, Ia.	4	15.6	14.1	12.4	9.4
St. Louis, Mo.	†4	15.1	13.6	13.6	8.9
Kansas City, Mo.	†4	14.8	13.3	13.3	8
St. Joseph, Mo.	†4	14.8	13.3	13.3	8.6
Fargo, N. D.	4	16.8	15.3	15.3	10.6
Minot, N. D.	4	18.0	16.5	16.5	11.8
Huron, S. D.	*5	17.3	15.8	15.8	10.1
Wichita, Kans.	4	14.3	11.5	10.5	8.0

†St. Louis, Kansas City and St. Joseph prices include 1c city tax. ‡Includes 4c state tax.

*South Dakota gasoline and kerosine prices include 0.1c for sales tax. Indiana t.w. and dealer gasoline prices include 0.2c for chain store tax.

Note: Effective July 1, 1935 in Iowa, and Sept. 11, 1936, in Indiana, Kansas, Michigan, Minnesota, Missouri, South Dakota and Wisconsin, and effective Oct. 1, 1936 in Illinois and North Dakota, S. O. Indiana discontinued posting service station prices, posting only a t.w. and a dealer price.

Discount to commercial consumers: Effective Jan. 1, 1935, thru territory, except Michigan effective Feb. 1, on purchases per month, discount off t.w. prices; all gasolines, 25 to 1,000 gals., at t.w. price; 1,000 gals., or more, 1.5c off t.w. on Ethyl and Red Crown, and 0.5c on Stanolind. Minimum delivery is 25 gals.

Subnormal Stanolind Points

Normally Stanolind tank wagon prices are 1c under normal Red Crown t.w. prices. Among subnormal points on Stanolind t.w. are these: Detroit, 13.5c; Des Moines, 14.1c; Mason City, 13.9c; Huron, 16c; and Wichita, 11.5c, all including state and federal taxes.

S. O. Nebraska

Standard Red Crown Gasoline

Omaha, Neb.	11.8	6	17.8	19.8	9.5
McCook, Neb.	12.5	6	18.5	20.5	10.2
Norfolk, Neb.	12.2	6	18.2	20.2	9.9
North Platte, Neb.	12.6	6	18.6	20.6	10.3
Scottsbluff, Neb.	13.3	6	19.3	21.3	11

Reliance Gasoline (Third Grade)

Omaha, Neb.	10	6	16	16	....
McCook, Neb.	11.5	6	17.5	18.9	....
Norfolk, Neb.	11.2	6	17.2	19.2	....
North Platte, Neb.	11.6	6	17.6	19.6	....
Scottsbluff, Neb.	12.3	6	18.3	20.3	....

Discount to dealers: where service station gasoline prices are normal, resellers allowance off service station prices are (*Maximum* over-all, including rent) as follows: Reliance 2½c; Standard Red Crown, and Solite with Ethyl, 3½c. Where service station gasoline prices are below normal, resellers' allowances are reduced one-half of the amount below normal, down to the following (*Minimum* over-all including rent): Reliance, 2c, Standard Red Crown and Solite with Ethyl, 3c.

Discounts to consumers: for tank wagon deliveries covered only by Standard Commercial Consumer Contract, effective January 1, 1935.

S. O. Louisiana

Essolene

	Consumer Tank Car	Dealer T.W.	Taxes	Posted S.S.	Kerosine T.W.
Little Rock, Ark.	7.5	10	7.5	**	11.5
Alexandria, La.	7.5	10	8	**	*11
Baton Rouge, La.	7	9.5	8	21	*11.5
New Orleans, La.	7	9.5	*10	23	*13
Lake Charles, La.	8	10.5	8	**	*10
Shreveport, La.	6.5	9	8	**	*10
Lafayette, La.	8	10.5	8	**	*12.5
Bristol, Tenn.	10	11.25	8	**	14.5
Chattanoogn, Tenn.	9.5	12	8	**	11.5
Knoxville, Tenn.	10	12.5	8	24	14
Memphis, Tenn.	8	10.5	8	22	9.5
Nashville, Tenn.	9	11.5	8	23	10

*New Orleans gasoline tax includes 7c state, 1c federal, and 2c parish tax. Louisiana kerosine prices include 1c state tax; in addition New Orleans has 1c parish tax.

**S. O. Louisiana transferred stations to dealers; no prices available.

Price basis to dealers: Undivided dealers get dealer price, less 0.5c.

Price basis to commercial consumers: Effective Feb. 11, 1935, commercial consumers not under contract will be billed at 2.5c per gal. above posted bulk plant tank car price at time and place of delivery in lots of 50 gals. or more at one time. Contract customers will be billed at following differentials over tank car price, on yearly purchases: up to 35 999 gals., 2.5c over tank car price; 36,000 to 119,999 gals., 2c over; 120,000 to 239,999 gals., 1.5c; 240,000 to 479,999 gals., 1c; 480,000 gals. and over, 0.5c.

On single deliveries to all classes of commercial consumers, of less than 50 gals., s.s. price at time and place of delivery applies.

Humble Oil & Refining Co.

Humble Motor Fuel

	*100% Dlr. T.W.	Total *100% Dlr. Taxes	Dlr. T.W.	S.S.	Kerosine T.W.
Dallas, Tex.	8.5	5	13.5	17	8.5
Ft. Worth, Tex.	8.5	5	13.5	17	8.5
Houston, Tex.	9	5	14	18	8.5
San Antonio, Tex.	9	5	14	18	8.5

U. S. Motor Fuel (Third Grade)

Dallas, Tex.	7	5	12	14	....
Ft. Worth, Tex.	7	5	12	14	....
Houston, Tex.	8	5	13	16	....
San Antonio, Tex.	8	5	13	16	....

*Price is t.w. price to contract dealers and commercial consumers. Price to open dealers is 0.5c above t.w. prices shown above.

Price basis to dealers: to contract dealers consumer accounts off posted retail price: when posted retail price, including all taxes on Esso motor fuel is: 19.1c per gal. and above discount is 4c; 19c to 18.1c, 3.5c; and 18c and below, 3c. Humble motor fuel, 17.1c and above, 4c; 17 to 16.1c, 3.5c; and 16c and below, 3c; U. S. motor fuel, 15.1c and above, 3c; 15 to 14.1c, 2.5c; and 14c and below, 2c. To "open" dealer accounts, discounts in each case are 0.5c less on the same price basis.

Continental Oil

Conoco Bronze Gasoline

	Total T.W.	Taxes	T.W.	S.S.	Kerosine T.W.
Denver, Colo.	14	5	19	21	11
Grand Junction, Col.	15	5	21.5	23.5	15
Pueblo, Colo.	14	5	19	21	10
Casper, Wyo.	14.5	5	19.5	21.5	11.5
Cheyenne, Wyo.	14.5	5	19.5	21.5	13
Billings, Mont.	16.5	6	22.5	24.5	14.5
Butte, Mont.	15	6	21	23	14.5
Great Falls, Mont.	16.5	6	22.5	24.5	14.5
Helena, Mont.	16.5	6	22.5	24.5	14.5
Salt Lake City, Utah.	16	5	21	23	16
Boise, Ida.	16.5	6	22.5	24.5	18
Twin Falls, Ida.	17	6	23	25	18
Albuquerque, N. M.	12.5	†6.5	19	21	13
Roswell, N. M.	13.5	†6.5	20	22	10
Santa Fe, N. M.	14.5	*7	21.5	23.5	12
Ft. Smith, Ark.	9.5	5	14.5	**	8
Little Rock, Ark.	9.5	7.5	17	**	9.5
Texarkana, Ark.	9.5	5	14.5	18.5	8.5

Demand (Third Grade)

Denver, Colo.	12	5	17	19	....
Cheyenne, Wyo.	12.5	5	17.5	19.5	....
Helena, Mont.	14.5	6	20.5	22.5	....
Salt Lake City, Utah.	12	5	17	19	....
Boise, Ida.	14.5	6	20.5	22.5	....
Albuquerque, N. M.	10.5	†6.5	17	19	....
Roswell, N. M.	9	†6.5	15.5	17.5	....

Continental Oil—Cont'd

Demand (Third Grade)

	Total T.W.	Taxes	T.W.	S.S.	Kerosine T.W.
Santa Fe, N. M.	10	*7	17	19	....
Ft. Smith, Ark.	8.75	5	13.75	**	....
Little Rock, Ark.	8.75	7.5	16.25	**	....
Texarkana, Ark.	7	5	12	14	....

†Includes city tax of 0.5c.

*Includes 1c city tax.

**Continental Oil transferred stations to dealers: no prices available.

Discounts: effective March 1, 1934, on gasolines thru territory, off normal s.s. price, except Montana, to "undivided" dealers: Ethyl and Conoco Bronze, 4c; Demand, 3c; except Arkansas, 3.25c. To "divided" dealers thru territory: Ethyl and Conoco Bronze, 3.5c; Demand, 2.5c, except Utah and Idaho where full 100% or undivided dealer discount is applied to divided dealers also; thru Montana, effective March 24, 1936, on gasoline, off t.w. price to "undivided" dealers: Ethyl and Conoco Bronze, 2c; Demand, 1c; to "divided" dealers: Ethyl and Conoco Bronze, 1.5c; Demand 0.5c. In Arkansas, all dealer discounts are reduced by one-half the difference between the normal s.s. and the posted price, when such posted prices are subnormal.

OKLAHOMA

	Dealer T.W. Tax	Conoco Bronze	Prices Demand	Kerosine T.W.
Muskogee	5	14	13	8
Oklahoma City	5	14	13	8
Tulsa	5	14	10	8

S. O. California

Standard Gasoline

San Francisco, Cal.	13	4	17	18	11.5
Los Angeles, Cal.	12.5	4	16.5	17.5	9
Fresno, Cal.	13.5	4	17.5	18.5	11
Phoenix, Ariz.	15	6	21	22	†16
Reno, Nev.	14.5	5	19.5	20.5	13
Portland, Ore.	13.5	6	19.5	20.5	13.5
Seattle, Wash.	13.5	6	19.5	20.5	13.5
Spokane, Wash.	16.5	6	22.5	23.5	16.5
Tacoma, Wash.	13.5	6	19.5	20.5	13.5

Flight Gasoline (Third Grade)

San Francisco, Cal.	11.5	4	15.5	16.5	....
Los Angeles, Cal.	11	4	15	16	....
Fresno, Cal.	12	4	16	17	....
Reno, Nev.	13	5	18	19	....
Phoenix, Ariz.	13.5	6	19.5	20.5	....
Portland, Ore.	12	6	18	19	....
Seattle, Wash.	12	6	18	19	....
Spokane, Wash.	15	6	21	22	....
Tacoma, Wash.	12	6	18	19	....

†Includes 5c state tax.

Discount to dealers: on gasoline, off t.w. price on Standard Ethyl and Standard Gasoline, to 100% dealers, 3c; to split dealers, 2c; on Flight gasoline, both 100% and split dealers, 2c.

On Stanavo Aviation Gasoline, to all classes of dealers, 3c off t.w.

To commercial consumers: off tank wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery on Stanavo Aviation, Standard Ethyl and Standard Gasolines, 3c. Flight Gasoline, 2c per gallon. S.s. schedule applies on single deliveries less than 40 gallons.

On kerosine in tank car, transport truck and trailer delivery, 3c off t.w. price; plant deliveries to jobbers, 2.5c below t.w.

Canada

Prices of Imperial Oil Ltd.

Per Imperial Gallon, which is 1.2 U. S. Gallons

Three Star Imperial Gasoline

Hamilton, Ont.	15	6	21	23.5	17
Toronto, Ont.	15	6	21	23.5	17
Brandon, Man.	22.8	7	29.8	32.8	22.3
Winnipeg, Man.	21.2	7	28.2	31.2	20.7
Regina, Sask.	22.5	7	29.5	32.5	22
Saskatoon, Sask.	25.3	7	32.3	35.3	24.8
Edmonton, Alta.	23.5	7	30.5	33.5	24.2
Calgary, Alta.	21	7	28	31	21.5
Vancouver, B. C.	15	7	22	26	23
Montreal, Que.	12.5	6	18.5	*	17.5
St. John, N. B.	16	8	24	28	18.5
Halifax, N. S.	16	8	24	28	18.5

*Imperial Oil Ltd. transferred stations to dealers; no prices available.

Discounts to dealers: off s.s. prices:

Maritime Provinces, 4c to all classes of dealers. Quebec, except Montreal City, Prairie Provinces and British Columbia, except Vancouver, 3c to divided dealers, 4c to undivided dealers. Ontario and Montreal City, 2½c to divided dealers, 3½c to undivided dealers, Vancouver, 5c to undivided dealers, 4c to divided, off t.w. price 1c to undivided dealers.

TANK WAGON, SERVICE STATION MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect Oct. 19, 1936, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

Aviation Gasoline

Following are tank car and/or tank wagon prices of aviation gasoline in principal marketing territories (Stanavo aviation in all territories except Continental Oil.) Tax column includes 1c federal tax, and state tax; also municipal taxes as indicated in footnotes.

In Effect Oct. 19, 1936

S. O. New Jersey

	Tank Car	T.W.
Bayonne, N. J.	10	12
Baltimore, Md.	10	12
Washington, D. C.		12.6
Richmond, Va.		14.2
Greensboro, N. C.		14.7
Raleigh, N. C.		16.6
Charleston, W. Va.		14.2

Colonial Beacon Oil Co.

	T.W.
Brooklyn, N. Y.	12.8
Buffalo, N. Y.	14.1
Boston, Mass.	14.5

S. O. Pennsylvnia

Philadelphia, Pa.	13.1
Pittsburgh, Pa.	13.9

S. O. Louisiana

New Orleans, La.	12.3
Shreveport, La.	12.6

Prices in above four territories do not include state or federal taxes. They are for 74 octane grade aviation gasoline. An 80 octane product generally brings 0.5c premium and an 87 octane product, 1.5c premium over the 74 octane grade.

Note: S.s. prices in above four territories are generally 6c over t.w. prices. Above t.w. prices are net, with no discounts allowed for quantity purchases. T.w. prices are generally tank car price, plus freight, plus 2.5c per gal.

S. O. Ohio

Thru Ohio

	Consumer Tax	Total Consumer T.W.
Stanavo Ethyl Aviation:		
73 octane	5	20.5
80 octane	5	21.5
87 octane	5	22.5

Discounts: For delivery on contract to hangar operators and resellers: 2c below commercial consumer posted t.w. price.

S. O. Indiana

Chicago, Ill.	4	18.4
Indianapolis, Ind.	5	20.3
Detroit, Mich.	4	19.9
Milwaukee, Wisc.	5	19.7
Minneapolis, Minn.	4	18.8
St. Louis, Mo.	*4	17.1
Kansas City, Mo.	*4	17.8
Fargo, N. D.	4	19.8
Huron, S. D.	5	20.3
Wichita, Kans.	4	17.3

*Includes 1c city tax.
**Includes 0.1c to cover sales tax.

Humble Oil & Refining Co.

	Tank Car
Baytown, Tex. (exclusive of taxes)	8.5

Continental Oil Co.

	T.W.	Tax	Total T.W.
Denver, Colo.	17	5	22
Cheyenne, Wyo.	17.5	5	22.5
Helena, Mont.	19.5	6	25.5
Salt Lake City, Utah.	19	5	24
Albuquerque, N. M.	15.5	*6.5	22

*Includes city tax of 0.5c.

S. O. California

Phoenix, Ariz.	17	6	23
Los Angeles, Cal.	14.5	4	18.5
San Francisco, Cal.	15	4	19
Reno, Nev.	16.5	5	21.5
Portland, Ore.	15.5	6	21.5
Seattle, Wash.	15.5	6	21.5
Spokane, Wash.	18.5	6	24.5

Note: For discounts, etc., see note under Standard and Flight gasoline above.

Naphtha (In Tank Wagon)

In Effect Oct. 19, 1936

(Net price in Tank Wagon; in Cents per Gallon)

S. O. New Jersey

	Mineral Spirits	V.M.&P. Naphtha
Baltimore, Md.	14	15.5
Newark, N. J.	12.5	14.5
Washington, D. C.	14	**17.5

**Steel bbls. only.

Socony-Vacuum Oil Co.

Buffalo, N. Y.	11.5	12.5
New York City	10.5	11.5
Rochester, N. Y.	12	....
Syracuse, N. Y.	14	....
Boston, Mass.	13	13.5
Bridgeport, Conn.	13	13.5
Providence, R. I.	13	14

2c off above t.w. prices in above two territories to large buyers in some instances.

Atlantic Refining Co.

Philadelphia, Pa.	11.5	12.5
Lancaster, Pa.	13	14
Pittsburgh, Pa.	12.5	14.5

Note: Prices for Mineral Spirits also apply to Stoddard Solvent; and prices for V. M. & P. Naphtha apply also to Light Cleaners Naphtha.

S. O. Ohio

	S. R. Solvent	V.M.&P. Naphtha
Thru Ohio	13.25	13.75

Note: V.M.&P. Naphtha prices also apply on Dry Cleaners naphtha and special Varnolene; Varnolene and Sohio Solvent 0.5c below these prices. Discounts to contract consumers, off t.w price: 300 to 999 gals., 0.5c; 1,000 to 2,499 gals., 0.75c; 2,500 to 4,999 gals., 1c; 5,000 or more gals. 1.5c.

S. O. Indiana

	Oleum Spirits	V.M.&P. Naphtha	Stanisol
Chicago, Ill.	16.2	16.5	15
Detroit, Mich.	17.9	19	18
Kansas City, Mo.	13.3	14.3	13.3
St. Louis, Mo.	13.6	14.6	12.5
Milwaukee, Wis.	18.2	19.2	18.2
Minneapolis, Minn.	17.3	18.3	16.4

Note: Prices for V.M&P. apply also to Light Cleaners Naphtha. All prices, with exception of Missouri points, include state tax. Prices shown are base prices, before discounts.

Naphtha (In Tank Cars)

In Tank Cars (F.o.b. refinery or seaboard terminal except Ohio, delivered price.)

	V.M.&P. Naphtha	Solvent
Baltimore	10	9.5
New York Harbor	10	9
Philadelphia district	10	9.5
Providence	10	9.5
Ohio points, delivered	9.25	*8.75

*This is on S.R. solvent.

Note: In Ohio, prices on D.C. naphtha and special Varnolene are same as V.M.&P.; on Varnolene and Sohio Solvent, prices are 0.5c less than on V.M.&P.

Latest Changes

From Oct. 13 to Oct. 19 inclusive. Dates and amounts of changes shown. See table for full current prices. Changes are on gasoline unless kerosine is indicated.

Socony-Vacuum—Mobilgas:

Split dealer t.w. revised in eastern New York state and New England, Oct. 13. Reductions ranged from 0.1c to 1.8c; two points were advanced. Unchanged were New York City, Binghamton, Buffalo, Jamestown, Rochester and Syracuse. Points were cut as follows: Hartford, 0.1c; New Haven, 0.2c; Albany, 0.3c; Plattsburgh, 1.3c; Burlington 1.8c; and others cut 0.5c, except Bangor up 0.5c and Rutland up 1c.

S. O. Indiana—Stanolind:

Milwaukee dealer cut 0.8c, Oct. 15.

Corrections

Notation of amount of change and dates not previously shown in table. Table in this issue is corrected to show these changes. Changes are on gasoline unless kerosine is indicated.

S. O. Louisiana—Essolene:

S.s. prices discontinued, Shreveport, and stations transferred to dealers, Sept. 1.

Gasoline Cut in New Jersey

NEW YORK, Oct. 20.—Unsettled conditions in the gasoline markets in northern New Jersey which have prevailed for several weeks came to a head Oct. 20 when several large distributors, including the Standard of New Jersey, reduced tank car and tank wagon prices 0.5 cents a gallon.

The reduction by the Standard was effective through New Jersey from Trenton across the state and to the north. Points south of Trenton were not reduced. Newark and Jersey City were included. The company's new prices at Newark, exclusive of taxes, are: consumer tank car, 7 cents; undivided dealer tank wagon, 8 cents.

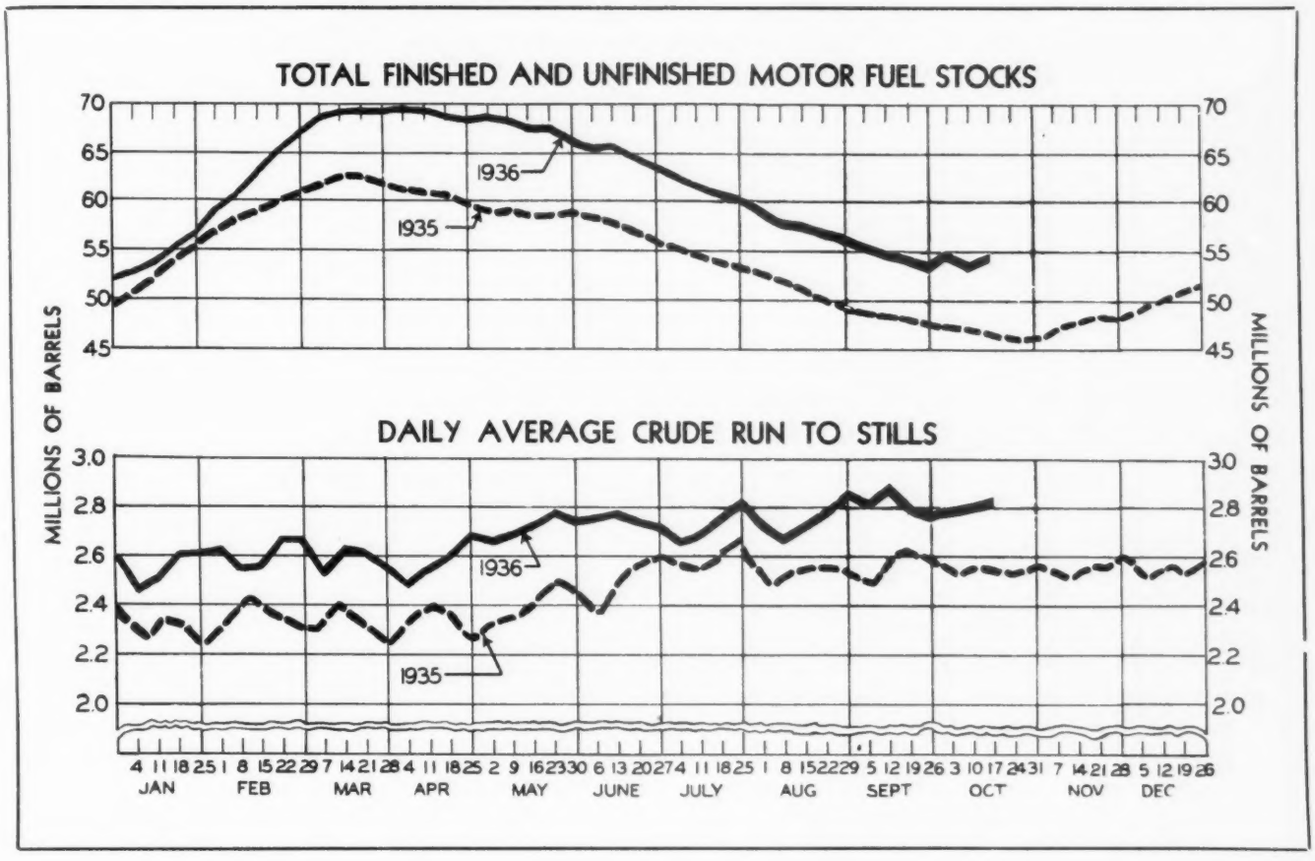
Technologists to Meet

(By Teletype)

TULSA, Oct. 20.—The Institution of Petroleum Technologists, select English society whose membership includes a number of American scientists, will meet at dinner in Chicago during the American Petroleum Institute convention. Tentative date is the evening of Nov. 10, in the Stevens Hotel. Dr. R. E. Wilson, Pan-American Petroleum & Transport Co., will be toastmaster.

The program arrangements are in the hands of C. R. Wagner, Pure Oil Co., and Dr. Gustav Egloff, Universal Oil Products Co., both of Chicago. The last meeting of the group was in Tulsa, during the mid-year meeting of the institute in May.

U. S. Crude Runs and Gasoline Stocks as Reported Weekly by A. P. I.


TOTAL FINISHED AND UNFINISHED MOTOR FUEL STOCKS
MILLIONS OF BARRELS
70
65
60
55
50
45
1936
1935
DAILY AVERAGE CRUDE RUN TO STILLS
3.0
2.8
2.6
2.4
2.2
2.0
4 11 18 25 1 8 15 22 29 7 14 21 28 4 11 18 25 2 9 16 23 30 6 13 20 27 4 11 18 25 1 8 15 22 29 5 12 19 26 3 10 17 24 31 7 14 21 28 5 12 19 26
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

Motor Fuel Stocks Rise 539,000 Barrels

NEW YORK, Oct. 20 WITH crude runs to refinery stills stepped up 29,000 barrels daily the week ended Oct. 17, stocks of motor fuel piled up over a half million barrels, according to the American Petroleum Institute's regular report. This at 89.8 per cent of the country's refining plants, operating at 79.6 per cent capacity.

Motor fuel stocks in the Texas Gulf district showed the largest gain. They increased 321,000 barrels over the previous week, with an accompanying increase of 36,000 barrels in daily crude runs to refinery stills.

Appalachian district reported an increase of 144,000 barrels in motor fuel stocks, but only a 3000 barrel increase in crude runs.

East Coast plants lowered motor fuel stocks 80,000 barrels and decreased crude runs 10,000 barrels. Oklahoma-Kansas-Missouri plants, with an increase of 12,000 barrels in crude runs, reported an increase of 91,000 barrels in motor fuel stocks. Inland Texas plants decreased runs 11,000 barrels and motor fuel stocks 34,000 barrels.

Refinery stocks of motor fuel totaled 29,507,000 barrels on Oct. 17, an increase of 745,000 barrels over stocks of Oct. 10. In-transit and terminal stocks declined 229,000, standing at 18,783,000 barrels on Oct. 17. Stocks of unfinished gasoline were up 23,000 barrels, to 5,930,000 barrels. Total net change in motor fuel stocks was an increase of 539,000 barrels.

CURRENT REFINERY OPERATIONS

Districts	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Stocks (Thousands of Barrels) Total Finished and Unfinished Motor Fuel*		Total Finished and Unfinished Motor Fuel*		Cracked Gasoline Production % Total Capacity Reporting	Daily Av. Production (Barrels) Week Ended	
		Oct. 17	Oct. 10	Oct. 17	Oct. 10	Oct. 17	Oct. 10	Gas & Fuel Oil Oct. 17	Gas & Fuel Oil Oct. 10		Oct. 17	Oct. 13
East Coast	100.0	526,000	536,000	85.9	87.0	15,444	15,524	12,658	12,644	100.0	106,000	104,000
Appalachian	94.8	104,000	101,000	71.2	69.2	2,232	2,088	641	644	98.7	25,000	26,000
Ind., Ill., Ky.	96.1	420,000	426,000	94.6	95.9	8,227	8,145	6,464	6,394	99.7	135,000	128,000
Okla., Kans., Mo.	84.8	291,000	279,000	75.8	72.7	5,676	5,585	3,471	3,507	89.1	68,000	71,000
Inland Texas	48.5	104,000	115,000	65.0	71.9	1,379	1,413	1,808	1,759	70.9	29,000	30,000
Texas Gulf	97.0	662,000	626,000	93.2	88.2	7,084	6,763	8,652	8,302	78.5	151,000	156,000
La. Gulf	96.4	129,000	130,000	79.1	79.8	1,520	1,456	2,286	2,352	96.1	34,000	35,000
No. La., Ark.	90.0	47,000	43,000	65.3	59.7	253	263	375	368	95.7	9,000	8,000
Rocky Mt.	61.9	45,000	46,000	75.0	76.7	770	774	746	766	84.8	13,000	14,000
California	92.6	490,000	487,000	62.1	61.7	11,635	11,670	73,048	73,087	100.0	72,000	74,000
Total Reporting	89.8	2,818,000	2,789,000	79.6	78.8	54,220	53,681	110,149	109,823	95.9	642,000	646,000
Estimated U. S. Total (Bur. of Mines Basis.)		3,060,000	3,030,000			57,987	57,448	113,773	113,447		685,000	690,000

*Includes stocks at refineries, in bulk terminals, pipe lines and in transit.

SEABOARD MARKETS, EXPORT AND COASTWISE

Prices do not include Federal tax. Where $ mark is shown, prices are per barrel of 42 U. S. gallons

Eastern Domestic

(Prices in cents per gallon tank car lots, unless otherwise noted, f.o.b. refinery or seaboard terminal, representing majority of sales and quotations to jobbers and/or consumers. Florida and S. Carolina inspection tax not included.)

*Motor Gasoline

Prices Oct. 19	60-64 Octane	65 Octane and Above
New York harbor	6.25 – 6.50	6.50 – 6.75
New York harbor, barges	6.00 – 6.25	6.25 – 6.50
Philadelphia district	6.50 – 6.75	6.75 – 7.00
Baltimore district	6.50	6.50 – 6.75
Norfolk district	6.50 – 6.75	7.00
Wilmington, N. C. district	6.75	7.00
Charleston, S. C. district	6.75	7.00
Savannah district	6.75	7.00 – 7.25
Jacksonville district	6.75	7.00 – 7.25
Portland district	7.00	7.25
Boston district	6.50	6.75
Boston district, barges	6.25	6.50
Providence district	6.50	6.75
Providence district, barges	6.25	6.50

*Due to lack of companies offering U. S. Motor gasoline, 59 octane and below in the open market, prices for this grade are discontinued. Quotations nominally are 0.25c below those for 60-64 octane grade.

†Nominal.

Water White Kerosine

Prices Oct. 19			
New York harbor	4.50 – 4.625	Savannah district	5.25
N. Y. harbor, barges	4.375– 4.50	Jacksonville district	5.25
Philadelphia district	4.50 – 4.75	Portland district	5.125
Baltimore district	4.50 – 4.625	Boston district	4.625
Norfolk district	4.625	Boston dist., barges	4.50
Wilmington, N. C.	4.625	Providence district	4.625
Charleston, S. C. dist.	4.625	Providence, barges	4.50

*Fuel Oils

Prices Oct. 19	New York harbor	New York harbor, barges	Philadelphia district
No. 1	4.50 – 4.625	4.375– 4.50	4.50 – 4.75
No. 2	4.25 – 4.375	4.125– 4.25	4.25
No. 3	4.25 – 4.375	4.125– 4.25	4.25
No. 4	3.75 – 4.00	3.625– 3.875	3.75 – 4.00
No. 5 (per barrel)	$1.35	.....	$1.35
No. 6 (per barrel)	$1.15	.....	$1.15

	Baltimore district	Boston district
No. 1	4.50 – 4.625	4.625
No. 2	4.25	4.25
No. 3	4.25	4.25
No. 4	3.75 – 4.00	4.25
No. 5 (per barrel)	$1.35	$1.45
No. 6 (per barrel)	$1.15	$1.15

	Boston dist., barges	Providence district	Providence dist., barges
No. 1	4.50	4.625	4.50
No. 2	4.125	4.25	4.125
No. 3	4.125	4.25	4.125
No. 4	4.125	3.75 – 4.00	3.625

*Fuel oils meet specifications of U. S. Commercial Standards CS12-35.

	Bunker Oil Grade C Per Barrel	Diesel Oil Ships' Bunkers Per Barrel	Gas Oil 28-34 Gravity Per gallon	Diesel Oil Shore Plants Per gallon
New York harbor	*$1.15	*$1.65	4.25	4.25
Philadelphia dist.	*$1.15	*$1.65	4.25	....
Baltimore district	*$1.15	*$1.65	4.25	....
Norfolk district	*$1.15	*$1.785	4.25	....
Charleston district	$1.10	$1.65	....	....
Savannah district	$1.10	$1.89	....	4.75
Jacksonville dist.	$1.10	$1.995	....	4.75
Tampa district	$1.10	$1.995	....	....
Portland district	$1.25	$1.75	....	....
Boston district	$1.15	*$1.65	....	....
Providence district	$1.15	$1.65	....	....

*Lighterage for bunker oil, 5c per bbl. additional; for Diesel oil, 6.5c per bbl. additional.

Pacific Export

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

Prices—	Oct. 19	Oct. 12	Oct. 5
53-55 U. S. Motor	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
400 e.p. blend 65 Octane and above	5.25 – 5.75	5.25 – 5.75	5.25 – 5.75
38-40 w.w. kerosine, 150 fire point	4.00 – 5.00	4.00 – 5.00	4.00 – 5.00
41-43 w.w. kerosine	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
44 water white kerosine	5.00	5.00	5.00
Prime wh. kerosine	3.25 – 4.25	3.25 – 4.25	3.25 – 4.25
In Cargo lots, per barrel			
Diesel fuel oil, above 23.9°	$1.05 –$1.25	$1.05 –$1.25	$1.05 –$1.25
Diesel fuel oil, under 23.9°	$1.00 –$1.10	$1.00 –$1.10	$1.00 –$1.10
30-34 gas oil	$0.95 –$1.10	$0.95 –$1.10	$0.95 –$1.10
Grade C fuel oil	$0.75 –$0.90	$0.75 –$0.90	$0.75 –$0.90
Pacific Export (cont'd)	Oct. 19	Oct. 12	Oct. 5
In Ships' Bunkers, or deep tank lots, per barrel:			
Diesel fuel oil, above 23.9 gravity	$1.00 –$1.16	$1.15 –$1.25	$1.15 –$1.25
Diesel, under 23.9 gravity	$0.95 –$1.10	$1.05 –$1.15	$1.05 –$1.15
Grade C fuel oil	$0.90 –$0.95	$0.90 –$1.00	$0.90 –$1.10
Cased Goods:			
Gasoline, U. S. Motor	$1.30 –$1.50	$1.30 –$1.50	$1.30 –$1.50
Gasoline, 400 e.p. blend	$1.45 –$1.65	$1.45 –$1.65	$1.45 –$1.65
38-40 w.w. kerosine, 150 fire point	$1.20 –$1.30	$1.20 –$1.30	$1.20 –$1.30
Kerosine, prime white	$1.15 –$1.25	$1.15 –$1.25	$1.15 –$1.25

New York Export

(Prices in cents per gallon in barrels, F.a.s. New York)

Cylinder Oils (Pennsylvania Products)

Bright stock:			
Light, 25 pour point	27.50	27.50	28.00
Dark, 25 pour point	27.00	27.00	27.50
Neutral oil:			
200 3 color, 25 pour point	28.00	28.00	27.50
150 3 color, 25 pour point	24.50	24.50	24.00
600 Warren E filtered	22.50 –23.00	22.50 –23.00	22.50 –23.00
600 stm. rfd., unfiltered	19.50 –20.00	19.75 –20.00	20.00 –20.50
650 stm. rfd. unfiltered	21.00 –21.50	21.50	21.50
600 flash, steam refined	22.00 –22.50	22.50	22.50
630 flash, steam refined	24.00	24.00	24.50

Wax Domestic *and* Export

(Prices in cents per pound. Tests made by A. S. T. M. methods. Melting points shown below, however, are A. M. P., 3° higher than A. S. T. M. (E. M. P.) melting points. Export prices are f.a.s. carload lots. Domestic prices are f.o.b. refineries in New York and New Orleans districts, in bags, carload lots, with 0.2c discount allowed for shipment in bulk.)

	New York		New Orleans	
Prices—Oct. 19	*Domestic*	*Export*	*Domestic*	*Export*
124-6 Y.C. scale	2.40 – 2.45	2.40 – 2.45	2.40 – 2.45	2.40 – 2.45
122-4 W.C. scale	2.40 – 2.45	2.40 – 2.45	2.40 – 2.45	2.40 – 2.45
124-6 W.C. scale	2.45 – 2.50	2.45 – 2.50	2.45 – 2.50	2.45 – 2.50
123-5 Fully refined	4.45	4.125	4.45	4.125
125-7 Fully refined	4.55	4.25	4.55	4.25
128-30 Fully refined	4.80	4.50	4.80	4.50
130-2 Fully refined	5.05	4.75	5.05	4.75
133-5 Fully refined	*5.35	5.25	*5.35	5.25
135-7 Fully refined	*5.60	5.50	....	....

*Shipment either in bags or in bulk.

Gulf Coast

(Prices are f.o.b. ship at Gulf oil terminals representing traders' opinions except prices specified to the contrary. Prices cover bulk shipments of 20,000 barrels or more, unless otherwise noted.)

Motor Gasoline

For Domestic Shipment

Prices—	Oct. 19	Oct. 12	Oct. 5
59 octane and below	5.50	5.50	5.50
60-64 octane number	5.875	5.875	5.875
65 octane and above	6.00	6.00	6.00

Fuel Oils

No. 1 Fuel oil	3.875– 4.00	3.875– 4.00	3.75 – 3.875
No. 2 Fuel oil	3.375– 3.50	3.375– 3.50	3.375
No. 4 Fuel oil	3.125– 3.25	3.125– 3.25	3.125– 3.25

Kerosine

41-43 w.w.	4.00	4.00	3.75 – 3.875

Gasoline

For Export Shipment

U. S. Motor gasoline	5.125	5.125	5.125
60-62, 400 e.p. gasoline	5.25	5.25	5.25
61-63, 390 e.p. gasoline	5.25 – 5.375	5.375	5 375
64-66, 375 e.p. gasoline	5.375– 5.50	5.50	5.50

Kerosine

44 water white	4.125	4.125	4.125
41-43 water white	3.75 – 3.875	3.75 – 3.875	3.75
41-43 prime white	3.625– 3.75	3.625– 3.75	3.625– 3.75

(*Continued on page* 98)

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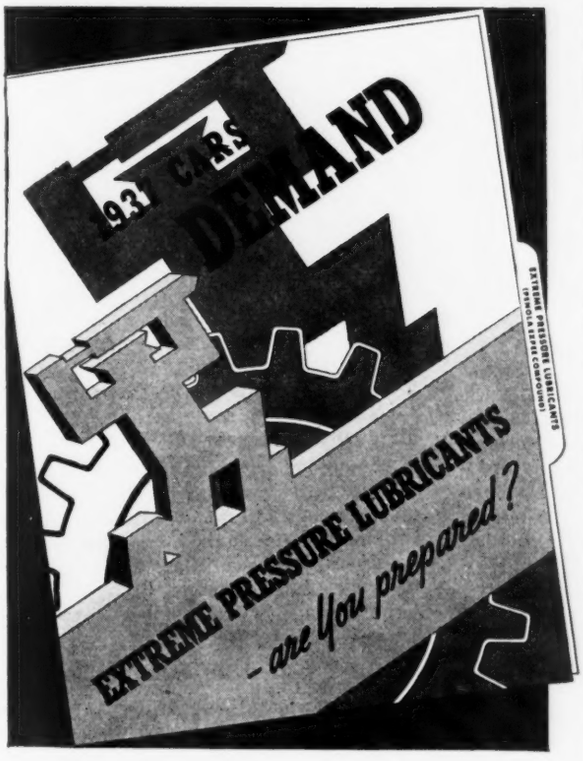
MAKERS SPECIFY EXTREME PRESSURE LUBRICATION!

THOUSANDS OF DEALERS CAUGHT UNPREPARED!!

JUST OUT!



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Please send me a free copy of the new Penola file booklet on extreme pressure lubrication—"Extreme Pressure Lubricants."

Name.....

Company.....

Street and No......

City.....**State**.....

SEABOARD MARKETS, EXPORT AND COASTWISE

Prices do not include Federal tax. Where $ mark is shown, prices are per barrel of 42 U. S. gallons

(Continued from page 96)

Prices—	Oct. 19	Oct. 12	Oct. 5
Gas and Bunker Oils			
For Domestic and/or Export Shipment			
*26-30 translucent gas oil	3.125- 3.25	3.125- 3.25	3.125- 3.25
*30 plus translucent gas oil	3.125- 3.25	3.125- 3.25	3.125- 3.25
*30 plus transp. gas oil	3.25	3.25	3.25
Diesel Oil Ships' bunkers	$1.50	$1.50	$1.50
Grade C bunker oil, for ships' bunkers, per bbl.	†$0.95	†$0.95	†$0.95
Grade C bunker oil, per bbl. in cargoes	$0.95	$0.95	‡$0.90
Mexican Crude and Bunker Oils (F.o.b. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid, per bbl.	$0.95	*$0.95	*$0.95
Grade C bunker oil, ships' bunkers, taxes paid, per bbl.	$0.95	$0.95	$0.95
Mid-Continent Lubricating Oils (Prices in cents per gallon in bbls. f.a.s. Gulf terminals. In drums and new barrels, 0.5c to 1c higher per gal. in some instances.)			
190-200 vis. D 210 bright stock	26.00	26.50	26.50
150-160 vis. D. 210 bright stock			
0-10 pour point	22.50 -23.00	23.50	23.50
10-25 pour point	22.00 -22.50	23.00	23.00
25-40 pour point	21.50 -22.00	22.50	22.50
150-160 vis. E 210 brt. stock	21.50 -22.00	22.50	22.50
120 vis. D 210 bright stock	20.50 -21.00	21.50	21.50 -22.00
180 vis. No. 3 color neutral Oil:			
0-10 pour point	16.50	17.00 -17.25	17.25 -17.50
15-30 pour point	16.00	16.25	16.25 -16.50
200 vis. No. 3 color neutral oil:			
0-10 pour point	17.00	17.75	17.75 -18.00
15-30 pour point	16.50	16.75	16.75 -17.00

*Less than ½ of 1% sulphur. †Lighterage 5c per bbl. additional. ‡Nominal.

*Nominal

Mid-Continent Lubricating Oils (Cont'd) Prices—	Oct. 19	Oct. 12	Oct. 5
600 s.r. olive green	12.25	12.25	12.50
600 s.r. dark green	11.00	11.00	11.00 -11.25
631 s.r.	18.00 -18.50	18.00 -18.50	18.00 -18.50
South Texas Lubricating Oils (Viscosity at 100° F., pour point 0. Tanker, f.o.b. Gulf oil terminals, for export shipment)			
Unfiltered Pale Oils: Vis. Color			
100 No. 3	5.25 - 5.50	5.25 - 5.50	5.25 - 5.50
200 No. 3	6.375- 7.00	6.375- 7.00	6.375- 7.00
300 No. 3	7.00 - 7.50	7.00 - 7.50	7.00 - 7.50
500 No. 3½	7.875- 8.50	7.875- 8.50	7.875- 8.50
750 No. 4	9.00 - 9.25	9.00 - 9.25	9.00 - 9.25
1200 No. 4	9.25 - 9.50	9.25 - 9.50	9.25 - 9.50
2000 No. 4	9.75 -10.25	9.75 -10.25	9.75 -10.25
Red Oils: Vis. Color			
100 No. 5-6	5.25 - 5.50	5.25 - 5.50	5.25 - 5.50
200 No. 5-6	6.125- 6.75	6.125- 6.75	6.125- 6.75
300 No. 5-6	6.75 - 7.00	6.75 - 7.00	6.75 - 7.00
500 No. 5-6	7.25 - 7.625	7.25 - 7.625	7.25 - 7.625
750 No. 5-6	9.00 - 9.25	9.00 - 9.25	9.00 - 9.25
1200 No. 5-6	9.25 - 9.50	9.25 - 9.50	9.25 - 9.50
2000 No. 5-6	9.75 -10.25	9.75 -10.25	9.75 -10.25

Note: Red oil prices shown above cover oils with green cast; prices for blue cast red oils are slightly lower in some cases.

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shipments per ton of 2240 pounds. British sterling: to U. S. ports, cents per barrel)

	Crude &/or Fuel		Refined Oil &/or Spirits	
Rates—Oct. 19	Last Paid	Owners Ask	Last Paid	Owners Ask
Calif. U.K./Cont.*	20/	20/-21/	17/	18/-19/
Gulf.-U.K./Cont.*	9/9	10/-11/	10/3	11/-11/6
Calif.-N. Atlantic (not E. of N. Y.)	....	†60c	....	†60c
Gulf-N. Atlantic** (not E. of N. Y.):				
Heavy Crude & Fuel	31c	31c	....	....
Light Crude	28c	28c	....	....
Gasoline	....	....	25c	25c
Kerosine	....	....	26c	26c
Light Fuel	....	....	27c	27c

Note: Dirty boat quotations are enlarged to cover, "Fuel and Light Crude" quotations.

*Continental ports in range between Bordeaux and Hamburg, both inclusive.

**Venezeula loading same rate: Tampico 2c to 3c per bbl. additional.

†Nominal.

COMING MEETINGS

(Continued from page 9)

ciation, (Kansas-Oklahoma Division) annual meeting, Tulsa, Okla., Nov. 20.

Independent Petroleum Association of America, annual meeting, Biltmore Hotel, Oklahoma City, Okla.. Nov. 30 and Dec. 1.

American Society of Mechanical Engineers, New York City, Nov. 30 to Dec. 4.

Twelfth National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York City, Nov. 30 to Dec. 4.

Mid-Continent Oil & Gas Association, (Texas Division) annual meeting, Houston, Texas, Dec. 4.

First International Consumers Petroleum Exposition, Convention Hall, Detroit, Mich., Dec. 5 to 13.

National Exposition of Chemical Industries, Grand Central Palace, New York City, Dec. 6 to 11.

Nebraska Petroleum Marketers, Hotel Paxton, Omaha, Nebr., Dec. 8, 9 and 10.

Mid-Continent Oil & Gas Association, annual meeting of general board of directors, Tulsa, Okla., Dec. 15.

1937

Northwest Petroleum Association, North Dakota division, Patterson Hotel, Bismarck, Jan. 18, 19.

Northwest Petroleum Association, Minnesota division, West Hotel, Minneapolis, Jan. 21, 22.

Kentucky Petroleum Marketers Association, Brown Hotel, Louisville, Ky., Feb. 8, 9, 10.

Ohio Petroleum Marketers Association. Hotel Deshler-Wallick, Columbus, Ohio, February 23, 24 and 25.

National Petroleum Association, 34th semi-annual meeting, Cleveland Hotel, Cleveland, Ohio, Apr. 15 and 16.

Decision Reserved

NEW YORK, Oct. 9.—Supreme Court Justice McLaughlin has reserved decision on a suit brought against the "Rockefeller group" seeking to invalidate certain mergers, sales and other transactions involving the Pan American Petroleum and Transport Co.

The suit was brought by Robert Black of New York City on behalf of himself and other stockholders. Defendants mentioned in the suit include John D. Rockefeller Jr., Edward L. Doheny, Walter C. Teagle, Charles R. Gay, president of the New York Stock Exchange, Standard Oil Companies of New Jersey and Indiana, and other individuals, banks and oil companies.

The suit charges that the Pan American company was stripped of its surplus through a series of financial transactions and the court is asked to name a receiver to rehabilitate the company in order that dividends might be paid.

Buys Gasoline Locomotive

WASHINGTON, Oct. 9.—The Department of the Interior announces the award of a contract to the Davenport Besler Corp., of Davenport, Ia., for $13,427.49 for a gasoline locomotive to be used by the Bureau of Reclamation in handling equipment at the Boulder Dam powerhouse.

The locomotive is to be delivered in 50 days. It is to be of standard design, capable of negotiating a turn of 100-foot radius up to a 6½ per cent grade.

CRUDE OIL MARKETS

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates as given

Eastern Fields

Posted by Joseph Seep Purchasing Agency

(Effective Jan. 13, 1936, except Corning Sept. 18, 1936)

Penna. Grade Oil in Southwest Penna. Pipe Lines.....$2.17
Penna Grade Oil in Eureka Pipe Lines (West Virginia).....$2.12
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.).....$1.97
Corning Oil in Buckeye Pipe Lines (Ohio) $1.32

Posted by Other Companies

Tide Water Pipe Co., Ltd.
Bradford-Allegheny district (Penna. and N. Y.) (Effective Jan. 13, 1936)..$2.45
*The Pennzoil Co.: (Effective Jan. 13, 1936)
Penna. Grade Oil in National Transit Lines*.....$2.42
Ashland Oil & Transportation Co.:
Somerset Oil in Ashland Lines (Ky.): (Effective Jan. 9, 1936)
Big Sandy River.....$1.30
Kentucky River.....$1.38
*The Pennzoil Co. posts $2.42 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields; prices in other lower districts range down to $2.37 per bbl. at well.

Michigan

Posted by Pure Oil Co.

Midland, Midland County (Sept. 16, 1936)$1.32

Posted by Simrall Pipe Line Corp.

(Effective Sept. 16, 1936)

West Branch and equal grades.....$1.16
Beaverton, Crystal, Greendale, Porter and equal grades.....$1.32

Central States Fields

Posted by Ohio Oil Co.

(Effective Jan. 9, 1936)

Illinois, Princeton, Western Kentucky..$1.23

(Effective Sept. 22, 1936)

Lima.....$1.15

Posted by Stoll Oil Refining Co.

(Effective Jan. 9, 1936)

Stoll Pipe Line Oil (Ky.).....$1.28

Canadian Fields

Posted by Imperial Oil Refineries, Ltd.

Western Ontario

(Effective Sept. 9, 1933)

Petrolia.....$2.10
Oil Springs.....$2.17

Alberta—Turner Valley

(Prices f.o.b. field tankage)

(Effective Feb. 3, 1936)

Crude:		Naphtha:	
40-44.9	$1.55	†Clear	$2.70
45-49.9	$2.12	†Discolored	$2.46
50 and above	$2.32		

†Clear naphtha: 22 color; 10 lbs. vapor pressure, Reid method; 90% recovery; end point, 410°. Discolored naphtha: same specifications as for clear naphtha except color.

Mid-Continent

Posted by Stanolind Crude Oil Purchasing Co.

(Effective Jan. 9, 1936)

(In Oklahoma Kansas)	(In North-North Central Texas)
Below 29 $0.94	$0.84
29-29.9 0.96	0.86
30-30.9 0.98	0.88
31-31.9 1.00	0.90
32-32.9 1.02	0.92
33-33.9 1.04	0.94
34-34.9 1.06	0.96
35-35.9 1.08	0.98
36-36.9 1.10	1.00
37-37.9 1.12	1.02
38-38.9 1.14	1.04
39-39.9 1.16	1.06
40 and above 1.18	1.08

Above Stanolind prices met as follows:

Jan. 9, by The Texas Co. in North and North Central Texas; Continental Oil in all three states.

Note: Stanolind prices in Okla.-Kans. are for quantities computed by 97% tank tables. In Texas, 99% tank tables are used, volume corrected to 60° F., and deduction for full b.s. & w. content.

Posted by Carter Oil Co.

In Oklahoma

(Effective Jan. 9, 1936)

Below 25	$0.86	33-33.9	$1.04
25-25.9	0.88	34-34.9	1.06
26-26.9	0.90	35-35.9	1.08
27-27.9	0.92	36-36.9	1.10
28-28.9	0.94	37-37.9	1.12
29-29.9	$0.96	38-38.9	$1.14
30-30.9	0.98	39-39.9	1.16
31-31.9	1.00	40 and above	1.18
32-32.9	1.02		

Jan. 9, Carter's Oklahoma gravity and price schedule met in Oklahoma-Kansas by Sinclair Prairie, and Humble's West Central Texas schedule met in North and North Central Texas where Sinclair-Prairie buys. Same day, Shell Petroleum met Carter in full in Oklahoma-Kansas.

Posted by Magnolia Petroleum Co.

(Effective Jan. 9, 1936)

In Oklahoma, same schedule as Carter Oil, which see above, beginning with below 25, at $0.86 and ending with 40 & above, at $1.18.

In Texas: North and North Central, including Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden; and in Central Texas, including Mexia, Wortham, and Panola county, same gravity and price schedule as Humble in West Central Texas, which see below, beginning with below 29 at $0.84, and ending with 40 and above, at $1.08.

Posted by Humble Oil & Refining Co.

Texas Fields

(*West Central Texas)

(Effective Jan. 9, 1936)

Below 29	$0.84	35-35.9	$0.98
29-29.9	0.86	36-36.9	1.00
30-30.9	0.88	37-37.9	1.02
31-31.9	0.90	38-38.9	1.04
32-32.9	0.92	39-39.9	1.06
33-33.9	0.94	40 and above.	1.08
34-34.9	0.96		

*Includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young counties.

Shell Petroleum Corp., on Jan. 9, met Humble in Fisher county, except that Shell posts five lower grades, beginning with below 25 gravity at $0.76; 25-25.9, $0.78; 26-26.9, $0.80; 27-27.9, $0.82; and 28-28.9, $0.84; rest of schedule same as Humble's in West Central Texas.

†Effective Dec. 1, 1934, Humble prices are based on 99% tank tables at 60F. Allowance or deduction of 1% is made for each 25° change in temperature above or below 60F.

*East Central Texas

(Effective Jan. 9, 1936)

Below 29	$0.91	35-35.9	$1.05
29-29.9	0.93	36-36.9	1.07
30-30.9	0.95	37-37.9	1.09
31-31.9	0.97	38-38.9	1.11
32-32.9	0.99	39-39.9	1.13
33-33.9	1.01	40 and above.	1.15
34-34.9	1.03		

*Including Anderson, Cherokee, Limestone, Navarro and Van Zandt counties.

Stanolind Oil & Gas Co., Jan. 20, posted in Marion County (East Central Texas), below 29 oil at $0.86, plus 2c differential, to 40 and above at $1.10.

Jan. 9, Sinclair-Prairie met Humble's prices in Mexia.

Panhandle Texas

Posted by Humble Oil & Refining Co.

(Effective Jan. 9, 1936)

	Gray County	Carson-Hutchinson
Below 35	$0.86	$0.81
35-35.9	0.88	0.83
36-36.9	0.90	0.85
37-37.9	0.92	0.87
38-38.9	0.94	0.89
39-39.9	0.96	0.91
40 & above	0.98	0.93

Jan. 9, above prices met by Sinclair-Prairie, Magnolia and The Texas Co. in the entire area, also by Continental Oil in Carson-Hutchinson.

East Texas

(Effective Jan. 9, 1936)

Stanolind, Humble, Shell, Sinclair-Prairie, Texas, Sun Oil and Magnolia.....$1.15

Shell also posted on Jan. 9, in Livingston area, Polk County, Texas, $1.15.

West Texas and New Mexico

Posted by Humble Oil & Refining Co.

(Effective Jan. 14, 1936)

(Including Andrews, Crane, Crockett, Ector, Glasscock, Howard, Winkler and Upton Counties, Texas, and Lea county, New Mexico).

Below 29	$0.75	33-33.9	$0.84
29-29.9	0.76	34-34.9	0.86
30-30.9	0.78	35-35.9	0.88
31-31.9	0.80	36 & above	0.90
32-32.9	0.82		

Pecos, West Texas.....$0.85

Posted by Continental Oil Co.

(Effective Jan. 9, 1936)

Artesia, Jackson and Maljamar pools, N. M. $0.80

Jan. 16, Magnolia met Humble in Crane, Upton, Howard, Glasscock, Mitchell and Winkler.

Jan. 9, Texas Co. posted Winkler and Lea counties at $0.85; Crane and Upton, $0.80.

Shell Petroleum Corp., on Jan. 23, met Humble in Crane, Glasscock, Howard, Pecos (except Yates shallow pool), Winkler, and Upton counties, Tex., and in Lea County, N. Mex. On Jan. 9, Shell posted in Yates shallow pool in Pecos county, Tex., $0.75.

Northeast Texas

(Posted by Humble, April 15, 1936)

Talco.....$0.60

(Posted by Magnolia, May 1, 1936)

Cass County (Rodessa field):
Below 29.....$0.86
29-29.9..... 0.88
Rest of schedule same as S. O. La. posts in Rodessa, which see below.

South and Southwest Texas

Posted by Humble Oil & Refining Co.

(Effective Jan. 14, 1936)

Darst Creek	$0.97	Pettus	$1.25
Salt Flat	0.97	Tomball	1.30
Saxet	0.90	Mirando	0.85

Shell Pet. Corp. on Jan. 9, posted $0.97 in Salt Flat district, Tex.

Anahua (Chambers county) and Dickinson (Galveston county)

(Effective Jan. 9, 1936)

30-30.9	$1.04	36-36.9	$1.16
31-31.9	1.06	37-37.9	1.18
32-32.9	1.08	38-38.9	1.20
33-33.9	1.10	39-39.9	1.22
34-34.9	1.12	40 & above	1.24
35-35.9	1.14		

Jan. 9, The Texas Co. posted $0.97 for Darst Creek.

Jan. 9, Magnolia posted $0.97 in Darst Creek; $1.30 in Tomball; $0.90 in Luling; $1.00 in Lytton Springs; $0.85 for Mirando; $1.10 for Cleveland, Liberty county, Tex.; $1.03 in Hardin, Liberty county, Tex.

Posted by Humble

Conroe and Raccoon Bend

(Deep sand crudes)

(Effective Jan. 9, 1936)

35-35.9	$1.24	38-38.9	$1.30
36-36.9	1.26	39-39.9	1.32
37-37.9	1.28	40 & above	1.34

Jan. 9, Texas Co. met above prices.

North Louisiana-Arkansas

Posted by Standard Oil Co. of Louisiana

(Effective Jan. 10, 1936)

(In Caddo, Homer, Haynesville, Sabine, De Soto, Rodessa, Sarepta, Carterville, El Dorado, and Miller county).

Below 25	$0.78	33-33.9	$0.96
25-25.9	0.80	34-34.9	0.98
26-26.9	0.82	35-35.9	1.00
27-27.9	0.84	36-36.9	1.02
28-28.9	0.86	37-37.9	1.04
29-29.9	0.88	38-38.9	1.06
30-30.9	0.90	39-39.9	1.08
31-31.9	0.92	40 and above.	1.10
32-32.9	0.94		

Smackover, Ark.....$0.75
Nevada, Ark..... 0.65
Urania, La. (La. Oil Refg. Co., Jan. 1, '34) 0.87
Tepetate, La. (Continental Oil, Jan. 9, '36)$1.12

The Texas Co., effective Jan. 9, posted in No. La.-Ark. same prices as Humble posts in West Central Texas. It also posted $0.80 for Smackover and $1.12 for La Fitte, La.

Magnolia Petroleum Co., effective Jan. 16, posted on No. La.-Ark. crude, prices beginning with $0.86 for below 29 gravity, plus 2 cent differential to 40 and above, at $1.10; this posting includes Rodessa, beginning March 16, 1936. It also posted on the same day, Eldorado (East Field), and Smackover, Ark., $0.75; Lockport, La., below 20 gravity, at $0.92, plus 2c differential, to 34 and above, which is $1.22; and for Iowa, La. and Cameron-Meadow field Cameron Parish, La., below 20 at $0.82, plus 2c differential, to 34 and above, at $1.12.

Stanolind Oil & Gas Co., Jan. 20, posted in Caddo Parish, La., below 29 oil at $0.86, plus 2c differential, to 40 & above at $1.10.

Shell Pet. on Jan. 9, posts same schedule in Black Bayou and White Castle, La. as Magnolia posts in Lockport, which see in above paragraph and in Iowa district, La. posts same schedule as Magnolia in Iowa and Cameron, which also see above.

(*Continued on next page*)

Cal. Tanker Shipments Up in September

LOS ANGELES, Oct. 15.—With the exception of fuel oil, gains were registered in all classifications of petroleum and its products shipped by tanker from California ports during September, as compared with September, 1935. The past month shipments averaged 175,714 barrels daily, an increase of 44,271 barrels daily, or 33.68 per cent over the September, 1935, average of 131,443 barrels daily.

Without exception, shipments to all geographical destinations were greater last month than in the corresponding period of 1935, according to preliminary estimates prepared by the Oil Producers Agency. The increase was due largely to a desire of shippers and buyers to protect themselves against a threatened maritime strike.

During the first nine months of 1936, total offshore tanker shipments of petroleum and its products from California declined 1.4 per cent to 161,876 barrels daily, from the corresponding period of 1935. Crude oil shipments registered the greatest decline during the January-September, 1936, period, dropping to 37,024 barrels daily from 43,766 barrels during the corresponding period of 1935.

Fredrick Weingard Dies

CLEVELAND — Fredrick Weingard, father of W. H. Weingard, of Oil City, and A. B. Weingard, of Butler, died Oct. 14 at the home of a daughter in Etna, Pa., of pneumonia. Mr. Weingard, who was 83, had lived near Tionesta, Forest county, Pa. for more than 70 years. Besides his two sons, he is survived by five daughters.

Welding Headquarters Opened

In recognition of a need for cooperative development of the industrial applications of the electric welding process, the Electric Welding Section of the National Electrical Manufacturers Association has established development headquarters at Pittsburgh.

It has been estimated that by securing the widest possible adoption of applications which have been definitely successful, the use of electric welding in the metal fabricating industries can be increased at least four-fold.

Mr. H. S. Card has been appointed development director.

CRUDE OIL MARKETS

(Continued from preceding page)

*Gulf Coastal Fields

Posted by Humble Oil & Refining Co.

(Effective Jan. 9, 1936)

Below 18	$0.88	26-26.9	$1.06
18-18.9	0.90	27-27.9	1.08
19-19.9	0.92	28-28.9	1.10
20-20.9	0.94	29-29.9	1.12
21-21.9	0.96	30-30.9	1.14
22-22.9	0.98	31-31.9	1.16
23-23.9	1.00	32-32.9	1.18
24-24.9	1.02	33-33.9	1.20
25-25.9	1.04	34 and above	1.22
Refugio heavy			$0.90

Effective Dec. 1, 1934, Humble prices are based on 99% tank tables at 60F Allowance or deduction of 1% is made for each 25° change in temperature above or below 60F.

*Includes these fields: Barbers Hill, Goose Creek, Hull, Humble, Liberty, Moss Bluff, Mykawa, Orange, Pierce Junction, Rabbs Ridge, Raccoon Bend (shallow sand), Refugio light, Sour Lake, Spindletop, Sugarland, and West Columbia.

Above gravity and crude schedule met Jan. 9 by The Texas Co., except that Texas Co. posts $0.92 for below 20. Jan. 9, Sinclair-Prairie met above Humble schedule in full.

Rocky Mountain Fields

Posted by Stanolind Oil & Gas Co.

(Effective Jan. 9, 1936)

Salt Creek, Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma-Kansas which see.

Grass Creek, heavy	$0.72
Greybull-Torchlight	1.28
Iles, light, Col.	1.06
Iles, heavy	1.00
Hogback, N. M.	1.21
Frannie light (Effective Feb. 24, '36)	0.78
Frannie heavy	0.72
Hamilton Dome, Wyo.	0.67

(Effective July 20, 1936)

Elk Basin, light	$1.18
Grass Creek, light	1.18

Ponders, Mont., (Postings discontinued July 1, 1936, but Stanolind pays price posted by Ohio Oil for Kevin-Sunburst, less 20c per bbl.)

Posted by Ohio Oil Co.

(Effective July 20, 1936)

Elk Basin, Wyo.	$1.18
Grass Creek, light	1.18

(Effective Jan. 9, 1936)

Rock Creek	$1.12
Big Muddy	1.11

(Effective June 5, 1936)

Sunburst, Mont.	$1.15

Posted by *International Refg. Co.

(Effective June 5, 1936)

Cut Bank, Mont.

Below 35*	$1.29	38-38.9	$1.37
35-35.9	1.31	39-39.9	1.39
36-36.9	1.33	40 and above	1.41
37-37.9	1.35		

*Texas Co. subsidiary.

Posted by Continental Oil Co.

(Effective Jan. 9, 1936)

Cat Creek, Mont.	$1.28

CALIFORNIA, Posted by Standard Oil of California

All gravities above those quoted take highest price offered in the field. Effective Feb. 26, 1936 except Huntington Beach, Playa del Rey, Santa Fe Springs, Kern Front, Signal Hill (Long Beach) effective March 7, 1936, and Elk Hills, effective June 22, 1936

Gravity	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda Brea Canon	Athens Rosecrans	Dominguez	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	‡Newhall and others	Mountain View	Elk Hills	Buena Vista Hills **Midway-Sunset	Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$0.80	0.79	0.74	0.78	0.79	0.80	0.76	....	....	0.80	0.76	0.76	0.77	0.78	....	0.70	....	0.70	0.70	0.65	0.70	0.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	.82	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	.85	.76	.78	.77	.78	....	.70	.70	.74	.74	.66	.74	.71	0.70
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	.88	.78	.82	.77	.80	....	....	.70	.78	.78	.68	.78	.72	.70
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	.91	.80	.85	.77	.84	.78	....	.73	.82	.82	.71	.82	.74	.70
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	.93	.84	.89	.79	.88	.78	....	.77	.87	.87	.74	.86	.78	.72
23-23.9	.95	.86	.77	.96	.99	1.02	.96	.84	.79	.96	.88	.93	.82	.92	.78	....	.80	.92	.92	.77	.90	.82	.76
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	.99	.91	.96	.85	.96	.82	....	.84	.97	.97	.80	.94	.86	.79
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	1.20	.95	....	.89	.99	.86	....	.88	1.01	1.01	.83	.98	.90	.83
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	1.05	.98	....	.92	1.03	.90	....	.91	1.06	1.06	.86	1.02	....	....
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	1.02	....	.96	1.06	.95	....	.95	1.10	1.10	.88	1.06	....	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	1.06	....	.99	1.10	.99	....	.99	1.15	1.15	.91	1.10	....	....
29-29.9	1.17	1.15	.93	1.18	1.18		1.17	1.12	.93	....	1.09	....	1.03	1.14	1.03	....	1.02	1.20	1.20	.94	1.14	....	....
30-30.9	1.21	1.19	.95	1.22	1.21		1.21	1.17	.95	....	....	....	1.07	1.17	1.08	....	1.06	1.25	1.25	.97	1.18	....	....
31-31.9	*Elwood Terrace		....		1.24		1.24	1.22	.97	....	....	....	1.11	1.21	1.12	....	1.09	1.29	1.29	.99	Kettleman Hills		
32-32.9	....	....	....	....	1.27		1.27	1.27	1.00	....	....	....	1.14	1.25	1.16	....	1.13	1.34	1.34	1.02			
33-33.9	....	1.28	....	....	....		....	1.32	....	....	....	....	1.18	1.28	1.20	....	1.17	1.38	1.38	1.04	....	1.19	....
34-34.9	....	1.32	....	....	....		....	1.37	....	....	....	....	1.22	1.32	1.25	....	1.20	....	....	....	....	1.23	....
35-35.9	....	1.35	....	....	....		....	1.42	....	....	....	....	1.25	....	1.29	....	....	....	....	....	....	1.27	....
36-36.9	....	1.39	....	....	....		....	1.46	....	....	....	....	1.29	....	1.33	....	....	....	....	....	....	1.31	....
37-37.9	....	1.43	....	....	....		....	1.51	....	....	....	....	1.32	....	1.37	....	....	....	....	....	....	1.35	....
38-38.9	....	....	....	....	....		....	1.56	....	....	....	....	1.36	....	1.42	....	....	....	....	....	....	1.39	....
39-39.9	....	....	....	....	....		....	1.61	....	....	....	....	1.40	....	....	....	....	....	....	....	....	1.43	....
40-40.9	....	....	....	....	....		....	1.66	....	....	....	....	1.43	....	....	....	....	....	....	....	....	....	....

F.O.B. Standard Pipe Line

*F. o. b. ship.
‡Also McKittrick, Kern River, Kern Front and Round Mountain $0.70 thru 19.9 gravity; no higher gravity quoted. **Except Lakeview Area.

DEMAND FOR *Fuel Oils* HEAVY

DESPITE the fact that milder weather prevailed in many sections of the country last week, demand for light fuel oil was pretty well maintained. Many consumers were beginning to fill their tanks so that distributors and jobbers were ordering their requirements from refiners.

Demand for industrial oils also was well maintained as steel mill and factory operations continued at the highest levels in six years.

Higher prices were established on all grades of fuel oil in some refinery districts, although sales continued to be made in some areas at prices prevailing the previous week.

With demand for gasoline being well maintained, demand for fuel oil for cracking purposes was not showing the usual seasonal decline, further bolstering the market.

* * *

TULSA, Oct. 17.—There apparently was no change in the light and heavy fuel oils market the second week of October. Both grades of oil were exceptionally active and supplies were reported somewhat scarcer.

Several refiners reported that, while they preferred to hold their light fuel oils until later in the fall, the demand from their regular customers was so heavy they actually were having to prorate current production among the buyers. The virtual depletion of stocks as a result of the severe cold weather last winter and the early demand for the oils this fall has prevented several refiners from building their stocks up to normal.

In view of the present situation several large buyers of both heavy and light fuels were known to be scouring the market in an effort to get as much oil under contract as possible. On the other hand a few refiners have indicated that they have accepted no contracts and that they are going to keep their oils in storage until later in the season and then offer it in the open market. Among the trade the amount of oil so held was considered relatively small.

* * *

CHICAGO, Oct. 17.—Mild weather over the middle west last week had little effect on activity in the Mid-Western fuel oil market. Offerings were limited, and buying inquiry remained heavy.

With the supply of light fuels tightly held, a seller's market ruled all week. Indications were that considerably more sales could have been consummated at prevailing lows had sellers cared to part with the oil. However, many were asking higher prices, and appeared none too anxious for orders even at slightly higher levels.

As the week ended some sellers reported they were posting higher prices for Nos. 1, 2 and 3 oils to be effective Oct. 19.

No. 5 and 6 oils were slightly higher and held steady at the new levels. Industrial demand was steady.

Range oil, with specifications similar to kerosine, was one of the most active products in the Mid-Western market. Early in the week this oil was bringing 3.125 cents, with most sellers reporting a minimum of 3.25 cents by Oct. 17.

FUEL OILS

Following are tank wagon prices of various grades of heating oil at the points shown in various territories. Prices are in cents per gallon.

Prices in Effect Oct. 19, 1936

	No. 1	No. 2	No. 3	No. 4
S. O. New Jersey				
Newark, N. J.	7.25	6	6	6
Atlantic City, N. J.	8	6.5	6.5	6
Baltimore, Md.	8	6	6	5.5
Washington, D. C.	8.00	6.75	6.75	6.75

Discounts: At Newark and Atlantic City, purchasers taking 50,000 gals. get discount of 0.5c per gal.

Socony-Vacuum Oil Co., Inc. (S. O. New York Division)				
New York City	7	6.50	6.50	6.00
Albany, N. Y.	7.75	6.50	6.50	6.25
Rochester, N. Y.	8.25	7.00	7.00	7.00
Boston, Mass.	7	6.25	6.25	6.25
Bangor, Me.	8	6.50	6.50	6.50
Manchester, N. H.	8	7.00	7.00	7.00
Burlington, Vt.	8.75	7.00	7.00	7.00
New Haven, Conn.	7.5	6.25	6.25	6.25
Providence, R. I.	7.00	6.50	6.50	6.00

Discounts: At New York City, consumers taking 10,000 to 50,000 gals., get 0.25c per gal. discount when minimum amount has been reached; above 50,000 gals., 0.5c.

Atlantic Refining				
Philadelphia, Pa.	6.75	5.50	5.50	5.00
Allentown, Pa.	7.75	6.50	6.50	6.50
Wilmington, Del.	7.25	6.00	6.00	5.50
Springfield, Mass.	7.50	6.00	....	6.00
Worcester, Mass.	7.75	6.75	....	6.75
Hartford, Conn.	7.00	6.50	....	6.50

S. O. Ohio				
*Ohio Statewide	8	7.50	7	6.75

Note: S. O. Ohio prices are for hose dumps; bucket dumps are 0.5c per gallon higher.

Except Cleveland Division and City of Toledo. In Cleveland Division (Cuyahoga, Lake and Geauga counties), No. 1 price is same as statewide; Nos. 2, 3 and 4 are 0.5c higher; No. 5 is priced 0.25c lower than No. 4. In Toledo No. 2 is 0.5c lower than statewide, others same.

S. O. Indiana

Stanolex Fuel and Furnace Oils

	No. 1 Fuel	Stanolex Furnace
Chicago	6.75	6.75
Indianapolis	....	*11.7
Detroit	6.8	6.8
Milwaukee	8	7.3
Minneapolis	7	7
Sioux City	7.1	7.1
St. Louis	7.5	6 8
Kansas City	6.5	6.5

*Includes state tax of 4c.

Note: Small-lot deliveries of light fuel oils range up to 2c higher than above quotations.

NEW YORK, Oct. 17.—Light fuel oils were quiet in eastern markets the past week, traders said, although demand was better in some quarters. Tank wagon deliveries to home burner owners has been on the upgrade, distributors reported, as temperatures dropped considerably in some sections of New York and New England.

Tank car and barge prices were unchanged at eastern terminals, although most traders said they were steady at the levels which have prevailed the past two weeks.

Heavy fuel oil markets remained steady. Demand from industrial plants continued good and suppliers said that the tight market at the Gulf, coupled with the firmness in the boat charter market, kept any large quantity of distress oil from appearing.

France Reduces Duty On Oil Products

WASHINGTON, Oct. 8.—France has reduced its import duties on gasoline and other petroleum products as one of a number of measures adopted to liberalize trade barriers following the recent "alignment" or devaluation, of French currency.

The oil reductions are effective as of Oct. 3, the Department of Commerce announces. They are:

On gasoline and white spirits, from 48.85 to 40.05 francs per 100 liters on importation, and from 37.80 to 29.45 on withdrawal from domestic refineries;

On kerosine, from 56.15 to 50.05 per 100 liters on importation and from 45.05 to 38.95 francs on withdrawal from domestic refineries;

On other refined mineral oils, not including lubricating oils, from 72.85 to 64.50 francs for 100 liters on importation and from 61.80 to 53.45 francs on withdrawal from domestic refineries;

On gas oil, the duty has been changed from 63.20 francs per 100 net kilos to 26.40 francs per 100 liters.

(100 liters amounts to approximately 26 U. S. gallons or 62 per cent of a barrel. 100 kilos equals approximately 72 per cent of a barrel).

The latest federal reserve quotation on French franc exchange is 4.67 cents. The last quotation before devaluation was 6.58 cents.

The reductions are quite sizeable, according to officials of the bureau of foreign and domestic commerce, particularly in view of devaluation.

A general revision of the French tariff is planned and a Commission has been established to work on the problem.

Sun to Build Terminal

The Sun Oil Co. is asking federal permission to construct a river terminal at Warwood, near Wheeling, W. Va., to unload petroleum products from barges, it has been announced.

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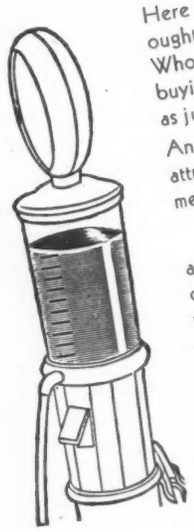

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ESSO INC.

Please Note That the Standard Oil Company (Indiana) HAS NO CONNECTIONS WITH ESSO STATIONS or ESSO Inc.

NEW PATENTS

Compiled by R. E. Burnham, patent and trade-mark attorney, 511 Eleventh Street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 25c each. State number of patent and name of inventor when ordering.

September 29, 1936

REFINING

Method of dewaxing oils—Leon C. Kettenring, Plainfield, and Louie H. Robertson, Elizabeth, N. J., assignors to Standard Oil Development Co. Filed June 4, 1934. No. 2,055,627.

Treating of carbonaceous materials (cracking) — Mathias Pier, Germany, assignor to I. G. Farbenindustrie. Filed June 2, 1934. No. 2,055,633.

Treatment of hydrocarbons — Jacque C. Morrell, Chicago, Ill., assignor to Universal Oil Products Co. Filed June 14, 1934. No. 2,055,875.

Conversion of hydrocarbon oils — Jacob B. Heid, Chicago, Ill., assignor to Universal Oil Products Co. Filed April 30, 1934. No. 2,055,896.

MISCELLANEOUS

Lubricating composition and method for making — Garland H. B. Davis, Baton Rouge, La., assignor to Standard Oil Development Co. Filed July 23, 1932. No. 2,055,482.

Process for preparing resins and asphaltenes — Stewart C. Fulton, Elizabeth, N. J., assignor to Standard Oil Development Co. Filed Oct. 30, 1931. No. 2,055,486.

Insecticide and germicide and process of making — William H. Hampton, Berkeley, Calif., assignor to Standard Oil Co. (Calif.). Filed Jan. 13, 1932. No. 2,055,491.

Fuel compounds and process of making — Ira C. Nourse, Tulsa, Okla. Filed March 5, 1934. No. 2,055,503.

Process for revivifying spent absorbent clays — John V. Starr, Cranford, N. J., assignor to Standard-I. G. Co. Filed Oct. 1, 1934. No. 2,055,616.

Production of oxalyl chloride—Peter J. Wiezevich, Elizabeth, N. J., assignor to Standard Oil Development Co. Filed June 23, 1931. No. 2,055,617.

Method for gas analysis — Alois Kremser, Berkeley, Calif., assignor to Standard Oil Co. (Calif.) Filed Feb. 9, 1934. No. 2,055,628.

Process for preparing synthetic coloring matter — Marvin M. Rosson, Los Angeles, Calif., and Egi V. Fasce, Baytown, Tex., assignors to Standard Oil Development Co. Filed Nov. 19, 1931. No. 2,055,634.

Weighted oil base drilling fluid — Thomas V. Moore, La Porte, and George E. Cannon, Houston, Tex., assignors to Standard Oil Development Co. Filed Oct. 17, 1934. No. 2,055,666.

Hydration of olefines — Alfred W. Francis, Woodberry, N. J., assignor to Socony-Vacuum Oil Co. Filed Oct. 11, 1933. No. 2,055,720.

Lubricant — Gus Kaufman and Oney P. Puryear, Beacon, N. Y., assignors to Texas Co. Filed Dec. 13, 1933. No. 2,055,795.

Builds Bulk Plant

OSHKOSH, Wis.—The Hathaway Oil Co. has built a bulk plant just north of Oshkosh. The company has taken over two former OB company service stations, one in Oshkosh, the other in Neenah.

OIL TRADEMARKS
For Copyright

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Munsey Building, Washington, D. C., trademark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

Pub. Sept. 29, 1936

A fantastic representation of a running athlete, Ser. No. 379,850. Shell Oil Company, San Francisco, Calif. Filed June 17, 1936.

For Lubricating Oil.

SANOLA, Ser. No. 374,073. Art Brass Company, New York, N. Y. Filed Jan. 25, 1936.

For Chemical Compositions for Stopping Leaks in Liquid and Gas Receptacles.

Stakild, Ser. No. 380,086. S. S. Stafford, Inc., New York, N. Y. Filed June 22, 1936.

For Insecticides.

VEGET-AID, Ser. No. 380,476. General Chemical Company, New York, N. Y. Filed July 1, 1936.

For Insecticides and Preparations for Control of Plant Pests.

* * *

Pub. Oct. 6, 1936

SEPTO SHINE, Ser. No. 378,790. James Kanthe, doing business as Septo-Products Company, Detroit, Mich. Filed May 23, 1936.

For Metal Polish.

BALAB, Ser. No. 380,542. Balab, Ltd., San Francisco, Calif. Filed July 3, 1936.

For Automobile Cleaner.

G and picture of two candles, within a circle, Ser. No. 378,074. A Gross Candle Company, Inc., Bltimore, Md. Filed May 6, 1936.

For Candles, Votive, Sanctuary, and Tabernacle Lights Made of Oils, Fats and/or Waxes, Similar to Candles.

MOR-LUBE, Ser. No. 381,007. Socony-Vacuum Oil Company, Inc., New York, N. Y. Filed July 14, 1936.

For Lubricating Oil.

OIL-O-SORB, Ser. No. 379,405. Frank D. Strickler, doing business as Waxene Products Company, Wichita, Kans. Filed June 6, 1936.

For Powdered Material for Absorbing Oils and Greases.

J-A-M, Ser. No. 381,395. John A. Myers, Philadelphia, Pa. Filed July 25, 1936.

For Liquid Insect Exterminator, Namely, an Insecticide.

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Overcomes Compression Losses
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Hearing in Arizona 'Gas' Price Charge

LOS ANGELES, Oct. 14.—Demurrers and motions by defendant oil companies directed to the information filed against them by E. Elmo Bollinger, county attorney of Mohave county, Ariz., will be heard Oct. 19 in the superior court of Kingman. Judge Edward Speakman, of Phoenix, is sitting in the place of the Mohave county judge.

Shortly after the first increase in the price of gasoline throughout the Pacific Coast area, including Arizona, in April, 1936, an information was filed by Mr. Bollinger against all of the major oil companies doing business in Mohave county, including Standard Oil Co. of California, Union Oil Co., Continental Oil Co., Shell Oil Co., The Texas Co., and Associated Oil Co. They were charged with a combination to increase the price of gasoline.

Shortly afterward, another increase was made in the price of gasoline, and the county attorney immediately filed an information again charging a combination to increase the price.

Demurrers filed to these informations by the defendants, upon the ground of legal insufficiency, were sustained by Judge Speakman in June, 1936, and he instructed the county attorney to file new informations.

After the demurrers had been sustained but before new informations had been filed, the Standard Oil Co. applied to the federal court in Arizona for an injunction to prevent the county attorney and the state attorney general from filing any new or additional informations against it. The federal court held that the sustaining of the demurrers did not end the suits and that, therefore, the actions were still pending in the state court of Arizona, for which reason the federal court had no jurisdiction.

Similar informations to those now before the court were filed by the same prosecuting attorney against the same companies in 1933 and dismissed on demurrer.

To Start Marketing Agency in Florida

MEMPHIS, Oct. 16. — W. H. Reed, for more than 10 years exclusive sales representative in five southeastern states for Lion Oil Refining Co., El Dorado, Ark., plans to move from his present headquarters in Memphis, Tenn., to Jacksonville, Fla., the first of 1937 to establish his own wholesale oil depot there. Mr. Reed expects to supply independent in Jacksonville territory with all grades of petroleum, except gasoline, readily salable in this territory.

Mr. Reed joined the Lion company as commission salesman for Mississippi, later becoming sales manager for the company at El Dorado. His present address in Memphis is 2704 Sterick Bldg.

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Refineries: Oil City, Pa.; Emlenton, Pa.; Farmer's Valley, Pa.; St. Mary's, W. Va.
Ocean Terminals: Baltimore, Md.; Tiverton, R. I.; Dorchester, Mass.; Carteret, N. J.; Edgewater' N. J.; Glastonbury, Conn.; Philadelphia, Pa.

Pyrethrum Flowers

THE second edition of Pyrethrum Flowers contains nearly 400 more references than the first edition published in 1933. The new book contains up-to-the-minute information concerning the growing of pyrethrum flowers; preparation for market; manufacture of powders and extracts from them; chemistry of pyrethrum flowers; storage; uses; past and present experiments in cultivation of the flowers in U. S. and other material.

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NEW REFINING PATENTS

Lubricating oil. No. 2 051 744, issued Aug. 18, 1936; filed July 10, 1933; C. F. Prutton, assignor to The Lubri-Zol Development Corp.; no drawing; 49 claims.

THE employment of certain halogen bearing materials which will react chemically with metallic surfaces in a bearing to create a film distinct from the film of pure lubricating oil, in order to secure improvement in "thin-film" lubricating properties without such a reduction in viscosity of the composition as to detract from the "thick-film" lubricating properties.

Preferably the following are used: di-chlor-benzene, notably the ortho compound, chlorinated naphthalene, chlorinated diphenyl, chlorinated homologs of the above such as toluene, methyl naphthalene and phenyl toluene, methyl naphthalene, and phenyl toluene, chlorinated derivatives of benzene, naphthalene, and diphenyl, such as aniline, naphthyl amine and phenyl aniline. These and other chain compounds are listed, all having a vapor pressure less than atmospheric at 140 C. (284 F.).

* * *

Pour point lowering. No. 2 053 853, issued Sept. 8, 1936; filed July 1, 1933; A. J. van Peski, assignor to Shell Development Co.; no drawing; 6 claims.

ACTIVE organic substances are built up of cyclic nuclei and aliphatic side chains, the latter containing at least one oxygen and nitrogen atom. Rufigallic acid hexasterate is one of the compounds used for pour point lowering. More generally the compound has an organic cyclic nucleus and a side chain of the formula R—C(O)—O—R′ where R— represents a high-molecular organic radical containing the high molecular aliphatic chain and —R′ represents an organic cyclic nucleus, at least two radicals of the group consisting of ester, keto, ether and amido radicals being linked to R′ when R′ represents a single monocyclic nucleus.

* * *

Solvent extraction. No. 2 054 050, issued Sept. 8, 1936; filed May 7, 1935; L. A. Clarke, assignor to The Texas Co.; no drawing; 2 claims.

METHOD in which oil is mixed with a solvent selected from the group consisting of methyl, ethyl and propyl amino benzoate, forming an extract phase containing relatively low viscosity index constituents dissolved in the solvent liquid and a raffinate phase comprising the relatively high viscosity index constituents, separating the two phases and removing the solvent.

* * *

Stabilization. No. 2 052 859-60, issued Sept. 1, 1936; filed Dec. 17, 1930; C. P. Wilson; no drawing; 4 claims each.

FEATURES of the invention are the production of oil-soluble oxidation inhibitors from certain types of oil-insoluble phenolic or amino compounds, such as pyrogallol and aminophenol by substitution of one or more alkyl or aryl groups for hydrogen atoms; an improved method of introducing an alkyl group into a phenol; and the utilization of turpentine, a liquid sulfur dioxide extract of an oil, or the unsaturated hydrocarbons derived from the pyrolysis of oil or coal, as the base or stock from which the substituted phenolic or amino compound is produced.

The introduction of alkyl groups is effected by a modification of the methods of Koenigs (Ber. 23, 3144; 24, 179, 3889; 25, 2649) for which seven improvements are listed.

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68-70 Under 360 End Point
42-44 W.W.D.T. Kerosene
38-40 Light Straw Zero Distillate
32-36 Overhead uncracked Gas Oil
Cracked Fuel Oil

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NEW BOOKS

Classifies 8200 Alloys

A technical reference book on engineering alloys aimed to present in tabular form as much data as possible on the chemical composition, physical and mechanical properties, uses, and manufacturers of proprietary alloys, has been published recently by the American Society for Metals.

The authors of the book, N. E. Woldman, metallurgical engineer, Eclipse Aviation Corp., and A. J. Dornblatt, head of the department of metallurgy and chemistry, U. S. Naval Academy postgraduate school, have included in their book not only all alloys manufactured in this country but also many alloys made in foreign countries, including England, France, Germany and Sweden.

The book is divided into seven sections. Section I gives an alphabetical listing or index of the 8200 alloys. Section II gives the trade name, composition, properties, uses, general remarks and a key number designating the manufacturer. Section III is an index of alloys classified according to typical uses or special characteristics such as corrosion resistance.

Of interest to the petroleum industry are the applications indexed in Section III. Under the head of oil refinery equipment, for example, are over 70 references to alloys used in their construction. There are similar references under oil burners, oil cracking units, oil pumps, oil refinery tubing, oil stills, and oil well equipment. Other typical references pertain to bearings of all kinds and corrosion resistant parts. The latter head is subdivided according to the chemicals causing corrosion. These references run into the hundreds.

The new book, entitled Engineering Alloys, and containing over 600 pages, is priced at $10. It is available at the American Society for Metals, Cleveland.

* * *

Interstate Port Handbook

The Chicago Regional Port Commission has published the 1936 edition of the Interstate Port Handbook. It contains a complete description of the seven harbors in the vicinity of Chicago and of the Illinois Waterway system, including detailed maps. The whole Illinois waterway from the Mississippi river to Lake Michigan, about 327 miles, is mapped in sections to a scale of five miles to the inch. Much data is given on port shipments.

Distribution of this handbook, according to President W. R. Dawes, has been largely through filling a great number of individual requests for it. It is a letter-size, paper-bound booklet of about 50 pages. The address of the Commission is 20 N. Wacker Dr., Chicago.

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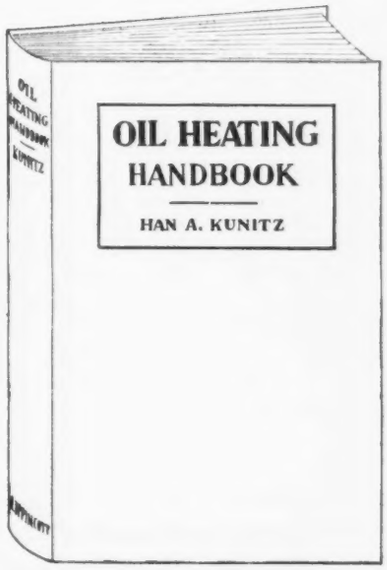

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TRANSACTIONS IN OIL STOCKS ON NEW YORK STOCK EXCHANGE

1935 High	1935 Low	1936 High	1936 Low	Listed Shares	Par Value	Company	Current Dividend	Last Div. Paid	Transactions Week Ended Oct. 17, 1936 Sales Shares	High	Low	Last	Week's Change
80	48 1/8	125 1/2	75	788,675	N.P.	Amerada Corp.	50cQ	July 31, 36	1,100	102 1/2	98 1/2	101	0
44	29 3/4	51 1/8	36	2,290,412	$25	Associated Oil Co.	25c	May 1, 36	170	42	42	42	+ 1
28	20 1/2	35 1/8	26 5/8	2,664,901	25	Atlantic Refining Co.	25cQ	Sept. 15, 36	15,900	28 7/8	27 3/4	27 7/8	— 3/4
14 3/4	5 7/8	20	14 1/8	2,131,090	5	Barnsdall Corp.	20c	Aug. 1, 36	18,300	19 1/2	18 1/4	18 7/8	— 3/8
9 7/8	6 1/4	28 3/4	8 1/4	1,444,970	N.P.	Colonial Beacon Oil Co.	....	.....	90	28 1/2	28	28	— 1/2
12 1/4	6 1/2	15 1/4	11 1/2	13,983,287	N.P.	Consolidated Oil Corp.	15c	Aug. 15, 36	40,600	14 3/8	13 3/8	13 3/8	— 3/8
112 1/2	108 1/2	106 1/8	101	132,771	$100	do pfd	$1.25Q	Sept. 1, 36					
35	15 1/8	38 1/2	28 1/8	4,682,662	5	Continental Oil Co.	25c	July 31, 36	16,800	35 1/4	32 5/8	33 3/4	— 1 1/4
22 1/2	11 3/4	34 3/4	21 1/4	413,333	$10	General Asphalt Co.	....	.....	20,000	27 5/8	25 3/8	27	+ 1 5/8
7	1 1/2	12 1/4	6 1/8	1,098,618	25	Houston Oil Co. v.t.c.	....	.....	16,300	10 1/4	9 3/4	9 7/8	— 1/4
5 1/4	2 1/8	13 5/8	4 1/8	1,207,132	10	Indian Refining Co.	....	.....	1,400	12 1/2	11	12	— 1
1 7/8	5/8	....	....	1,309,060	N.P	Louisiana Oil Ref'g. Corp.	....	.....					
15	4 1/2	51 1/2	13	40,000	$100	do pfd	....	.....	610	38 1/2	35	37 1/2	+ 1/2
3	1	6 3/4	2 1/4	330,000	N.P.	Maracaibo Oil Exploration Co.	....	.....	2,900	3 7/8	3 3/8	3 1/2	— 3/8
20 1/2	9 1/2	27 1/4	17 1/4	1,843,872	$10	Mid-Continent Pet. Corp.	40c	June 1, 36	10,500	*27 1/4	25 7/8	26 1/2	— 1/2
17 3/4	10 3/8	26 1/4	16 3/4	1,399,345	N.P.	Mission Corp.	....	.....					
14 1/4	9 1/4	17 1/2	12 1/4	6,563,377	N.P.	Ohio Oil Co.	25c	June 15, 36	14,600	14	13 1/4	13 3/8	— 3/4
21	10 3/4	20 5/8	12 1/4	4,699,885	$5	Pan Amer. Pet. & Transp. Co.	....	.....	100	12 1/2	12 1/2	12 1/2	— 1/4
1 7/8	1/2	4 1/4	1 3/8	199,370	N.P.	Panhandle Prod. & Ref'g. Co.	....	.....	400	2 1/2	2 1/4	2 1/4	— 3/8
20	6 1/2	74 1/2	18 1/2	17,994	$100	do pfd	....	.....	20	55	55	55	— 5 1/2
14	7 5/8	18	12 3/8	2,153,444	5	Petroleum Corp. of America	25c	Sept. 30, 36	4,600	15 1/8	14 1/2	14 1/2	— 1/2
40	13 3/4	49 3/8	38 1/8	4,152,836	N.P.	Phillips Petroleum Co.	25cQC	Sept. 1, 36	19,500	45 7/8	44 3/8	44 3/8	— 1/2
1 1/4	1/4	2 1/4	7/8	1,184,817	$25	Pierce Oil Corp.	....	.....					
8	2 3/4	17	8	150,000	100	do pfd	....	.....	400	11 7/8	10 7/8	11	— 1
1 3/4	5/8	2 1/2	1 1/2	2,500,000	N.P.	Pierce Petroleum Corp.	....	.....	22,800	2 1/4	2 1/4	2 1/4	0
13	6 1/2	17	11 7/8	1,050,000	$5	Plymouth Oil	25cQ	Sept. 30, 36	6,700	16 7/8	16	16 1/4	— 1/4
17	5 7/8	24 7/8	16 1/4	3,038,370	N.P.	Pure Oil Co.	....	.....	24,200	18 3/4	17 1/4	17 5/8	— 1
103	34 3/4	118	91 1/4	167,640	100	do 6% pfd	$1.50	Oct. 1, 36	1,100	96 1/8	95 1/2	95 3/4	— 1/4
119 7/8	49 5/8	133 1/2	103	130,000	100	do 8% pfd	$2.00	Oct. 1, 36	280	108 3/4	107	107	— 2
48 1/2	29 1/4	57 5/8	48 3/4	425,342	a	Royal Dutch Co. (N. Y. shares)	$1.70	Aug. 1, 35					
36 7/8	20 3/4	42 1/2	30 1/2	1,244,383	N.P.	Seaboard Oil of Del.	25c	Sept. 15, 36	2,800	34 3/4	32 5/8	32 7/8	— 1 1/8
39	20 3/4	48	38 1/2	56,148	£2	Shell Transport & Trading Co.	$1.237	July 24, 35					
16 1/2	5 1/2	21 1/2	14 3/4	13,070,625	N.P.	Shell Union Oil Corp.	....	.....	32,600	24 1/2	22 1/2	24 1/2	+ 3/4
111	63 1/4	124 1/8	110 1/2	400,000	$100	do pfd. w.w.	$1.37 1/2	Oct. 1, 36	4,600	*124 1/8	122 1/2	124 1/8	+ 1 1/4
18 3/4	4 3/4	6 3/4	3 1/2	461,000	10	Simms Petroleum Co.	**$1.00	July 31, 36	1,300	4 1/4	4 1/4	4 1/4	0
20 1/2	6 1/2	31 1/2	19 1/2	1,008,549	15	Skelly Oil Co.	....	.....	19,300	33 3/8	31 3/8	33 1/4	+ 2
116 1/4	60	132	116	120,000	100	do pfd	$1.50	Aug. 1, 36	400	119	117 5/8	119	+ 1 3/8
15 3/4	10 5/8	17	12 1/2	31,151,075	15	Socony Vacuum Oil Co.	25c	Sept. 15, 36	108,600	16 7/8	16	16 1/4	— 3/8
116	111	113 1/2	109 1/2	764,925	100	S. O. Export Corp. pfd	$2.50 S.A.	June 30, 36					
41 1/8	27 3/4	47 5/8	35	13,014,754	N.P.	S. O. California	30c	Sept. 15, 36	15,800	39 5/8	37 3/4	38 1/4	— 1
33 3/8	23	40 1/8	32 3/4	15,215,677	$25	S. O. Indiana	50c	Sept. 15, 36	12,500	39 3/8	38 7/8	39	— 1/4
32	20	30 3/4	25	145,441	10	S. O. Kansas	....	.....	1,800	30 1/4	30	30	— 3/8
52 3/8	35 3/4	70	51 1/8	26,200,825	25	S. O. New Jersey	75c	June 15, 36	24,300	65 1/2	63 1/2	64 1/8	— 1 1/8
77	60 1/2	91	72	2,019,093	N.P.	Sun Oil Co.	25cQ	Sept. 15, 36	400	80 1/2	80	80	— 1
121	115 1/2	124	118	100,000	$100	do pfd	$1.50Q	Sept. 1, 36	140	123	122 1/2	123	0
3 1/2	1 5/8	6 3/4	3	966,979	$1	Superior Oil Corp. (Del.)	....	.....	7,200	4 5/8	4	4 1/4	— 1/4
30 1/4	16 1/2	40	28 7/8	9,851,236	$25	The Texas Corp.	50c	Oct. 1, 36	34,700	43 1/8	41 5/8	42 3/4	0
9 1/4	3 1/4	15 1/4	7 1/2	930,570	10	Texas Pacific Coal & Oil Co.	25c	Aug. 1, 36					
15 7/8	7 5/8	19 1/2	14 3/4	5,998,919	N.P.	Tide Water Associated Oil Co.	15c	Sept. 1, 36	11,200	19 1/2	18 1/4	19	0
104 1/2	84	106 1/2	100 5/8	695,503	$100	do pfd. C. T. V.	$1.50	Oct. 1, 36	800	104	103	103 1/2	— 3/4
48	26 3/4	60	51	2,191,823	N P.	Tide Water Oil Co.	45c	Aug. 31, 36					
24	14 3/4	28 1/2	20 3/4	4,386,070	25	Union Oil of California	25cQ	Aug. 19, 36	4,500	23 7/8	22 1/2	22 1/2	— 3/4
26 1/2	20 1/4	31 5/8	22 5/8	1,200,000	N.P.	Union Tank Car Co.	30cQ	Sept. 1, 36	1,300	30	29 1/4	29 5/8	+ 1/8
1 5/8	5/8	2 7/8	5/8	759,538	N.P.	Warner Quinlan Co.	....	.....	1,600	1 3/4	1 1/8	1 3/8	+ 1/8
3 1/8	1	5 1/4	2 3/4	431,443	$5	H. F. Wilcox Oil & Gas Co.	....	.....	2,400	3 1/8	3	3 1/8	— 1/8

*New high. †New low. Ex-div. **Dividends of liquidation. ‡Stock dividend. a Par 33 1/3 florins.
C Paid 25c extra Sept. 1, 36.

STANDARD OIL STOCKS ON NEW YORK CURB MARKET

1935 High	1935 Low	1936 High	1936 Low	Listed Shares	Par Value	Company	Current Dividend	Last Div. Paid	Transactions Week Ended Oct. 17, 1936 Sales Shares	High	Low	Last	Week's Change
16	6	18	12 1/4	36,000	$25	Borne Scrymser Co.	75c	Oct. 15, 36	.....	....	....	....	....
42 1/2	30 1/2	50	39 3/4	200,000	50	Buckeye Pipe Line Co.	75cQ	Sept. 15, 36	100	46	45 3/4	46	+ 1
157	115	124 3/4	108 7/8	120,000	25	Chesebrough Mfg. Co.	$1.50	Sept. 30, 36	50	118	118	118	0
23 3/4	10	34 3/4	19 7/8	6,974,356	$5	Creole Petroleum Co.	25c	July 15, 36	12,800	29 3/8	27 7/8	28	— 1 1/4
38	33 1/4	46	39	50,000	$50	Eureka Pipe Line Co.	$1Q	Aug. 1, 36					
64	44	76 1/2	57	8,985,662	N.P.	Humble Oil & Refg. Co.	50cQ	Oct. 1, 36	2,200	66 1/2	65	65 1/2	— 1 7/8
22 1/2	15 3/4	24 1/2	20	26,965,078	N.P.	Imperial Oil Ltd.	°25cS.	June 1, 36	7,000	22 3/4	22 3/8	22 1/2	0
22 1/2	15 7/8	24 3/8	20 1/8	.....	N.P.	do registered	25cQ	June 1, 36	300	22 5/8	22 3/8	22 5/8	+ 1/8
6 1/8	3 3/8	9 3/4	5 1/2	300,000	$10	Indiana Pipe Line Co.	20c**	May 15, 36	100	9 1/4	9 1/4	9 1/4	— 3/8
39 3/4	28	39 3/8	32 7/8	14,324,088	N.P.	International Pet. Co.	°75cS.	June 1, 36	7,000	36 7/8	36 3/8	36 1/2	— 1/8
....	....	36 1/2	33 3/8	.....	....	do registered	....	.....	100	36 1/4	36 1/4	36 1/4	+ 1/4
10 5/8	6 3/4	15 3/4	9 1/4	509,000	$12.50	National Transit Co.	40c	June 15, 36	400	11 7/8	11 7/8	11 7/8	0
4 7/8	3	6 1/4	4 1/4	100,000	5	New York Transit Co.	15c S.A.	Apr. 15, 36	100	5 1/4	5 1/4	5 1/4	+ 1/4
8	5 1/4	9 1/4	4 7/8	120,000	10	Northern Pipe Line Co.	15c	July 1, 36	400	9	8 7/8	8 7/8	— 1/8
107 1/4	90 1/4	110 3/8	104 1/2	562,122	100	Ohio Oil Co. pfd.	$1.50Q	Sept. 15, 36	300	109	108 3/4	108 3/4	— 1/4
11	5 1/2	8	5 1/2	400,000	25	Penn Mex. Fuel Co.	....	Dec. 22, 33	300	5 3/4	5 3/4	5 3/4	0
34 1/2	21 5/8	40 7/8	32 1/2	1,142,671	25	South Penn Oil Co.	60c	Sept. 30, 36	1,000	40 1/2	40	40 1/4	— 1/4
5	3 1/8	7 7/8	3 7/8	100,000	10	Southern Pipe Line Co.	10c	Sept. 1, 36	200	4 3/4	4 1/2	4 3/4	0
56	45 1/4	60	48	35,000	50	South West Pa. Pipe Lines	$1.00	Oct. 1, 36					
24	18	23 5/8	17 1/8	2,604,801	10	S. O. Kentucky	35c	Sept. 15, 36	6,500	20 3/8	19 5/8	20 1/8	+ 5/8
12	7 3/4	14 5/8	11	182,803	25	S. O. Nebraska	....	June 20, 34	1,000	13 3/8	12 1/4	13 3/8	+ 1
23 5/8	11 1/2	36 1/4	21 3/4	753,740	25	S. O. Ohio	25c	Oct. 15, 36	6,500	36 3/8	33	36 1/4	+ 2 5/8
99 1/2	89	107 1/2	97	120,000	100	do 5% pfd	$1.25Q	Oct. 15, 36	25	106	106	106	+ 1/2
6	2 1/4	10	5 3/8	34,158	25	Swan Finch Oil Corp.	87 1/2c	Mar. 16, 36	.....	....	....	....	....

*New high. †New low. °Imperial Oil Spec. 37 1/2c June 1, 36. International Pet. Spec. 50c June 1, 36.
x Ex dividend. **15c regular; 5c extra.

Jobber Remodels Station

NEENAH, Wis.—The Wisconsin Lubricating Co. is remodeling a service station here. The original building is being enlarged for more merchandise space and to cover an outdoor lift.

CHICAGO—L. A. Mekler, combustion engineer, Universal Oil Products Co., addressed the Chicago section of the American Institute of Chemical Engineers Oct. 14 on "The Equiflux Furnace."

NEW YORK CURB BONDS

Week Ending Oct. 17

	High	Low	Last	Change
Cities Serv. 5s '66	79 1/2	77 1/4	77 1/4	—1 3/4
Cities Serv. 5s '50	79	76 1/4	77 1/4	—1 5/8
Cities Serv. G. 5 1/2s '42	102 3/4	102 1/4	102 1/4	— 1/4
Empire O & R 5 1/2s '42	88	87 1/8	88	+1
Valvoline Oil 7s '37	100	100	100	0

OIL AND ROYALTY STOCKS ON NEW YORK CURB

1935 High	1935 Low	1936 High	1936 Low	Par Value	Company	Transactions Week Ended Oct. 17, 1936 Sales Shares	High	Low	Last	Week's Change
1/16	1/16	1 7/16	1/16	N.P.	American Maracaibo	3,900	1/16	1/16	1/16	— 1/16
3 1/8	1/8	7 1/8	3 1/4	N.P.	Arkansas Nat. Gas	1,700	6	5 3/8	5 3/8	— 3/8
3 1/4	1/8	7 3/4	3 1/4	N.P.	do A	9,200	6	5 3/8	5 3/4	— 1/4
7 1/2	2 1/4	10 1/4	7 1/8	$10	do pfd	3,200	10	9 7/8	9 7/8	0
16 3/4	14 1/2	27 1/4	16 1/2	N.P.	British Amer. Oil coup.	200	23 5/8	23 5/8	23 5/8	+ 1/8
....	....	26 1/4	21 3/8	N.P.	do registered	....	....	....	....	....
4 1/4	1 5/8	4 7/8	2	$1/4	Carib Syndicate	10,100	2 3/8	2 1/8	2 1/4	0
3 1/4	3/4	7 3/8	3	N.P.	Cities Service	36,500	4 1/2	4	4 1/8	— 3/8
47 1/4	6 1/8	66	41 1/2	$100	do pfd	3,400	56 3/4	51 3/4	55 1/4	— 1 3/4
4 3/8	5/8	6 1/2	3 3/4	10	do pfd. B	100	4 7/8	4 7/8	4 7/8	0
43	6	63	41	100	do pfd. BB	....	....	....	....	....
2 1/8	1/2	4	5/8	N.P.	Colon Oil Corp.	....	....	....	....	....
1 1/2	1/8	5 1/2	3/4	N.P.	Columbia Oil & Gas vtc.	5,800	4 1/8	3 7/8	3 7/8	— 1/4
3	1	5	2	$1	Consolidated Royalty	500	2 1/2	2 1/8	2 1/2	+ 1/8
1 1/2	1/4	4 1/8	1 1/2	N.P.	Cosden Oil	49,500	3 3/4	2 3/4	3 1/4	+ 3/4
6 1/4	3/4	21 3/4	6 1/2	$100	do pfd	12,200	*21 3/4	15 3/4	20	+ 5
2 1/8	5/8	2 3/4	1 3/4	N.P.	Crown Central Pet.	2,100	2	1 3/4	1 3/4	— 1/8
8 7/8	4	13 3/8	9	N.P.	Darby Petroleum	3,600	*13 3/8	11 1/4	13 3/8	+ 5/8
2	3/4	6 3/4	1 7/8	N.P.	Derby Oil & Refg.	5,300	6 1/8	5 3/4	6	— 1/8
20	20	79 3/4	25 1/2	N.P.	do pfd	125	79 3/4	77 1/2	77 1/2	— 2
74 3/4	50 1/4	104 3/4	72	$25	Gulf Oil Corp.	6,400	101	99 1/8	100 3/8	— 5/8
4 1/4	1 3/8	6 1/4	2 5/8	N.P.	Indian Ter. Illg. Oil A	....	....	....	....	....
4 1/4	1 1/8	6 1/2	3	N.P.	do B	100	3 1/4	3 1/4	3 1/4	+ 3/8
3	1 1/8	5 1/8	2 5/8	N.P.	Kirby Petroleum	700	4 3/8	4 1/4	4 3/8	— 1/8
3/4	1/4	2	1/2	$25	Leonard Oil Dev.	2,000	1	7/8	7/8	— 1/8
8 1/4	3 1/2	15 1/2	7 3/8	N.P.	Lion Oil Refg.	1,300	14	13 1/2	14	+ 1/8
10 7/8	4 1/2	14 1/4	9 7/8	N.P.	Lone Star Gas	3,300	13 3/4	13 1/8	13 1/8	— 5/8
19	4	22 1/4	13 3/4	N.P.	Margay Oil Co.	....	....	....	....	....
2 3/8	7/8	4 1/8	1 1/2	N.P.	Mexico-Ohio Oil	200	1 3/4	1 3/4	1 3/4	— 1/4
3 3/8	1 1/8	4 3/4	1 7/8	N.P.	Michigan Gas & Oil	800	2 3/4	2 1/2	2 1/2	— 1/2
3 1/8	7/8	6	3	N.P.	Mid. States Pet. A vtc.	4,400	4 1/4	4	4 1/8	— 3/8
1/4	1/4	2 5/8	1/4	N.P.	do B vtc.	3,600	1 1/8	1	1 1/8	0
1/2	1/4	1/4	1/4	$1	Mountain & Gulf	....	....	....	....	....
5 3/4	4 1/8	8 3/8	5	10	Mountain Producers	2,900	5 3/8	5 1/4	5 1/4	— 1/8
20	11 3/4	23	17 3/4	N.P.	National Fuel Gas	2,300	20 1/4	19 1/4	19 3/8	— 1
3 1/4	2	4 1/2	2 7/8	$5	New Bradford Oil	1,400	3 3/8	3 1/8	3 1/4	— 1/4
4	2	8 3/8	3 3/8	N.P.	North Central Texas	....	....	....	....	....
1/8	1/8	1/8	1/8	N.P.	North European	500	1/8	1/8	1/8	— 1/8
12 3/4	9 1/8	15 1/4	13 1/2	N.P.	Oil Stocks Ltd. A	300	14 7/8	14 1/2	14 1/2	+ 3/8
4 3/8	1 1/4	6 5/8	3 1/4	N.P.	Pantepec of Venezuela	24,500	6 1/8	5 5/8	5 3/4	— 1/4
3/8	1/8	1	1/8	N.P.	Producers Royalty	1,500	1/4	1/8	1/4	+ 1/8
3 3/4	1/2	15 1/2	3	N.P.	Red Bank Oil	2,400	12	11	12	+ 3/4
1/2	1/8	1 1/2	1/8	N.P.	Reiter-Foster Oil	1,300	3/4	5/8	5/8	0
2 7/8	1/2	2 3/4	1/4	$25	Richfield Oil pfd	1,700	1 1/4	7/8	1 1/4	+ 1/4
5	1 1/2	19 1/4	4 1/2	$1	Root Petroleum	4,900	15 3/4	15 1/8	15 1/4	0
15 1/8	8	23	14 1/2	20	do conv. pr. pfd	200	19 3/4	19 3/4	19 3/4	+ 1/4
....	....	39	26 3/4	$10	Royalty Corp. pfd	....	....	....	....	....
2 1/2	5/8	4 3/4	1 7/8	N.P.	Ryan Consolidated	1,500	3 3/8	3	3	— 3/8
1	1/4	2 1/8	1/2	$10	Salt Creek Consolidated	....	....	....	....	....
7 1/2	5 1/2	10	5 3/4	10	Salt Creek Prod.	7,500	6 3/8	5 7/8	5 7/8	— 5/8
6 1/8	4 3/4	11 1/4	6 1/4	N.P.	Southland Royalty	100	7 7/8	7 7/8	7 7/8	+ 1/8
2 1/8	1/8	5	2 5/8	$5	Sunray Oil	4,800	3 3/8	3 1/8	3 1/8	— 1/8
....	....	49	47 1/2	....	do pfd	....	....	....	....	....
4	2	6	4 1/4	$1	Swiss Oil Corp.	7,100	5 1/2	5 3/8	5 1/2	+ 1/8
6 1/8	5	9 3/4	4 1/2	N.P.	Texon Oil & Land	1,400	5 3/4	5 1/2	5 5/8	+ 1/8
....	....	7	2 3/8	....	Venezuela Mex.	1,600	6 3/4	5 3/4	5 3/4	— 1 1/4
2 1/4	1/8	3 1/2	1 1/4	$1	Venezuela Petroleum	2,700	1 5/8	1 1/4	1 1/2	0
6 1/8	3 1/2	11	5 5/8	$1	Woodley Petroleum	500	8 7/8	8 5/8	8 7/8	+ 3/8

*New high. †New low.

OIL DIVIDENDS

Dividends Waiting Payment

Company	Amount	Record	Payable
Amerada Corp. q	50c	Oct. 15	Oct. 31
Atlantic Refg. 4% pfd. q.	1.00	Oct. 5	Nov. 2
Barnsdall Oil Co. q	20c	Oct. 10	Nov. 2
Cons. Oil $5 pfd. q	$1.25	Nov. 16	Dec. 1
Consolidated Oil Corp. q.	15c	Oct. 15	Nov. 16
do extra	25c	Oct. 15	Nov. 16
Continental Oil Co.	25c	Oct. 5	Oct. 31
do extra	25c	Oct. 5	Oct. 31
Eureka Pipe Line q	$1.00	Oct. 15	Nov. 2
Indiana Pipeline	20c	Oct. 23	Nov. 14
do extra	20c	Oct. 23	Nov. 14
Root Petroleum q	25c	Oct. 19	Nov. 1
Skelly Oil 6% pfd	$6.00	Oct. 1	Nov. 2
Tide Water Assoc	15c	Nov. 10	Dec. 1
Union Oil of Calif. q	25c	Oct. 17	Nov. 10

NEW YORK BONDS

Week Ended Oct. 17

	High	Low	Last	Change
Houston Oil 5 1/2s '40	102 1/4	102	102 1/4	+ 1/4
Pan Amer. Pet. of Calif. 6s	38 3/4	37	38 3/4	+ 1 3/4
do 6s ctfs	38 1/2	36	38 1/4	+ 1 1/2
Pure Oil 4 1/4s '50 w.w.	116 3/4	114	115	— 1 1/8
Pure Oil 4 1/4s '50 x.w.	104 1/2	104 1/2	104 1/2	+ 1/4
Richfield Oil of Calif. 6s	42 3/4	41 3/4	42 1/2	+1
do 6s ctfs	42 1/2	41 1/4	42 1/4	+ 3/4
Shell Union Oil 3 1/2s '51	99	98 1/2	98 3/4	— 1/4
Skelly Oil 4s '51	101	100 1/2	100 5/8	+ 1/8
Socony-Vacuum 3 1/2s '50	105 1/2	105	105	0
S. O. N. J. 3s '61	100 1/4	99 7/8	99 7/8	+ 1/4
Union Oil of Calif. 6s A	121 1/4	121 1/4	121 1/4	0
do 4s '47	117 3/8	116 1/2	117 1/4	+ 3/4
Warner-Quinlan 6s '39	43 7/8	39 1/2	43 1/2	+ 1/2

PITTSBURGH STOCK EXCHANGE

Transactions Week Ended Oct. 16, 1936 (5 days)

	Sales	High	Low	Last	Change Over Week
Ark. Nat. Gas	110	5 5/8	5 5/8	5 5/8	0
do pfd	304	10	9 5/8	10	0
†Cities Serv	89	4 1/4	3 3/4	4 1/4	0
Col. Gas & Elec.	755	20 1/2	19 1/2	20 1/4	— 5/8
†Col. Oil & Gaso.	264	4	3 7/8	3 7/8	— 1/8
Devonian Oil	108	18 1/2	18 1/2	18 1/2	+ 3/8
†Gulf Oil of Pa.	400	101	101	101	1 1/2
Lone Star Gas	2,445	13 7/8	13 3/8	13 3/8	— 1/2
Mountain Fuel Supply	4,114	6 5/8	6 1/4	6 1/2	0
Plymouth Oil	90	16 7/8	16 1/2	16 1/2	0
Shamrock Oil & Gas	4,382	5	4 7/8	5	0
do rights	62,176	.06	.03	.03	— .01
†Standard Oil of N. J.	306	65 5/8	63 5/8	64	— 1

†Unlisted.

CLEVELAND STOCK EXCHANGE

Transactions Week Ended Oct. 17, 1936

	Sales	High	Low	Last	Change Over Week
Canfield Oil	....	....	....	....	....
do pfd	....	....	....	....	....
Nat'l Refining	150	7 1/4	7 1/4	7 1/4	— 1/4
do pfd	35	100 1/4	100	100 1/4	— 4 3/4

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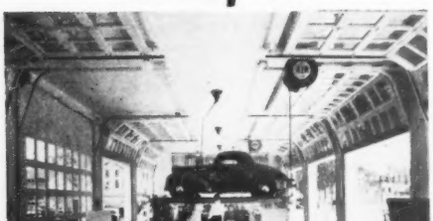
Showmanship
THAT BOTH SAVES AND MAKES
Profits



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Oil Exhibit Invites

CHICAGO, Oct. 16.—A worth-while and interesting attraction to which delegates and visitors to the American Petroleum Institute's 17th annual convention in Chicago have been specially invited, is the petroleum exhibit at the Museum of Science and Industry. The museum, founded by Julius Rosenwald, is at 57th St. and Lake Michigan, in Jackson Park. The exhibit is sponsored by the Institute.

A complete picture of the petroleum industry is presented in operating models, full size equipment, charts and photographs of every phase of the industry, beginning with geology and ending with marketing and economics. Geophysical prospecting, development, production methods, transportation, storage and refining are covered in the panorama of the industry's operations. Admission is free.

Seeks Change in Rail Rate

WASHINGTON, Oct. 9.—The Chicago, Milwaukee, St. Paul and Pacific railroad has filed an application with the Interstate Commerce Commission, asking for relief from the long-and-short haul provisions of the transportation act on shipments of gasoline from Superior, Wis., to the Twin Cities and nearby points because of "potential pipe line competition."

The long-and-short-haul provision forbids a road to charge more for a short haul to an intermediate point than for the long haul to a destination beyond the intermediate point.

Unless requests for a hearing are received within 15 days, the ICC will investigate without formal hearing.

Sales Up

Orders received by the General Electric Co. during the third quarter of 1936 amounted to $74,922,441, compared with $54,400,819 during the third quarter of 1935, an increase of 38 per cent. Over the 9-month period increase in orders amounted to 33 per cent.

Buys Kettleman Interest

Tide Water Associated Oil Co. has acquired the Terrabella Investment Company, a California corporation, by an exchange of stock. The New York stock Exchange authorized the Tide Water group to list 230,000 shares more of its stock which will be exchanged with the stockholders of all the outstanding shares of the California company.

By acquiring Terrabella, Tide Water Associated becomes owner of a 2.6797 per cent interest in the Kettleman North Dome association, a royalty interest in oil leases operated by that association, a bonus interest payable out of oil produced in the Kettleman North Dome area, approximately $700,000 in cash and other miscellaneous assets.

The total estimated present day discounted value of the assets acquired is $7,453,000. It will thus provide increased income from the established earning capacity of Terrabella.

Venezuela's Production

WASHINGTON, Oct. 15.—Production of petroleum in Venezuela during August amounted to 2,091,898 metric tons (approximately 14,650,000 barrels), which was the highest monthly production since the beginning of 1935, the Commerce Department reports. Production in July was 2,079,150 tons, and 1,898,215 tons in August, 1935. Venezuelan exports in August amounted to 2,120,913 metric tons, a new 1935-1936 high.

Sale of Stock Approved

NEW YORK, Oct. 8.—The sale of approximately 21,000 shares of the capital stock of the Colombia Petroleum Co., now owned by the Carib Syndicate, Ltd., to a private group for $2,000,000 was approved by the board of directors of Carib here today, subject to appproval of the stockholders.

These shares represent the syndicate's interest of about 21 per cent in the Barco oil concession in Colombia. The remainder of the concession is held jointly by The Texas Corp. and the Socony-Vacuum Oil Co., Inc. These companies purchased it from the Gulf Oil Corp. last April.

Gulf Places Big Pipe Order

PITTSBURGH — Gulf Oil Corp. has placed an order for about 300 miles of 10-inch seamless tubing with which to add loops to its crude line between Jenks, Okla., and Dublin, Ind. Approximately 30,000 tons of pipe will be required.

The pipe, which will cost about $1,500,000, will be produced by Jones & Laughlin Steel Co. and National Tube Co., the latter having about two-thirds of the order.

Holloway Chairman

NEW YORK—G. A. Holloway, of Lee C. Moore Co., Wichita, Kan., has been made chairman of the Mid-Continent district of the American Petroleum Institute's Division of Production, succeeding H. L. McQuiston. Mr. McQuiston, formerly with the Phillips Petroleum Co., at Oklahoma City, has moved to Texas. Mr. Holloway was first vice-chairman of the district.

Sands Petroleum Head Dies

NEW YORK, Oct. 13.—Frank R. Abbey, president of the Sands Petroleum Corp., Tulsa, died aboard his yacht which was at anchor near Essex, Conn. Mr. Abbey, who was 60 years old, had been in ill health for several months.

'Gas' Consumption Up In Canada

OTTAWA, Oct. 16.—Gasoline consumption in the nine provinces of Canada for the six months ended June this year totaled 243,327,000 Imperial gallons, an increase of 15,664,000 gallons, or 6.88 per cent, over the corresponding period last year, according to the Dominion Bureau of Statistics here.

All provinces indicated gains in demand, ranging from 1.19 per cent in Saskatchewan to 27.25 per cent in Prince Edward Island. Ontario, with the highest consumption, showed an increase of 1.65 per cent.

Detailed figures are given in the accompanying table.

Canada Gasoline Consumption

*(In Thousands of *Imperial Gallons)*

Province	6 Months Ended June 30, 1936	1935	% Chge. 1936 over 1935
Pr. Ed. Island	1,032	811	+27.25
Nova Scotia	9,489	7,777	+22.01
New Brunswick	5,769	4,837	+19.27
Quebec	43,278	38,744	+11.70
Ontario	116,856	114,958	+ 1.65
Manitoba	10,911	10,606	+ 2.87
Saskatchewan	12,633	12,484	+ 1.19
Alberta	22,374	19,438	+16.91
Br. Columbia	20,984	18,308	+14.62
Total	243,327	227,663	+ 6.88

*Imperial gallon equals 1.2 U. S. gallons.

World Consumption 702 Gals. Per Car

NEW YORK, Oct. 16.—Out of a total estimated world gasoline consumption of 26,190,936,000 gallons in 1935, the United States used 18,265,674,000 gallons, or 697 gallons per motor vehicle, the American Petroleum Institute says. This compares with an average of 702 gallons for each of the 37,329,209 automobiles in the world. The high consumption per vehicle in other countries is due principally to car ownership in the higher income classes, the institute points out.

Cost of Gasoline Taxes

. NEW YORK—A company retailing a daily necessity to 1,000,000 American homes, found that last year its gasoline costs for a fleet of 1600 delivery trucks and cars, were increased 38½ per cent by federal and state gasoline taxes. The company paid an average of $100.26 per vehicle for gasoline and $38.60 for gasoline taxes, according to the American Petroleum Institute. Its distribution costs increased $61,766.44 last year due to these taxes.

New Can Plant

Continental Can Co., New York, has let a contract to the Austin Co., Cleveland, for erection of a plant in Malden, Mass. The plant will have three stories and a floor area of 70,000 square feet.

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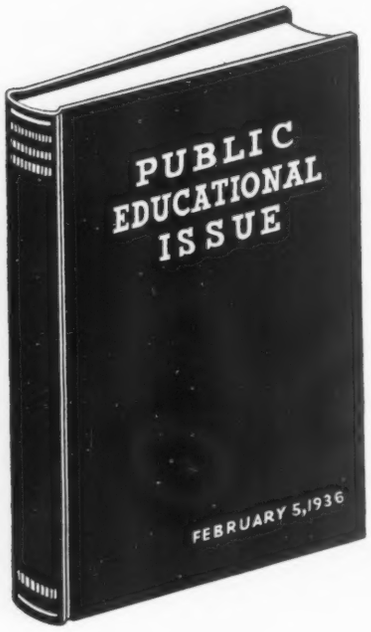
World "Gas" Tax 45%

NEW YORK, Oct. 16.—The average retail price of gasoline over the world is 20 cents per gallon, but the consumer pays an average of 16.6 cents per gallon in taxes and tariffs, making the total average cost 36.6 cents, the American Petroleum Institute points out from a survey made by the U. S. Department of the Interior.

The Institute's contention that high taxes retard the use of motor vehicles is borne out by the fact that the continents having the highest standards of living have the lowest gasoline prices. The lowest average cost of gasoline is in North America, the cost being 21 cents including taxes and tariffs. In South America the average is 22.5 cents; in Oceania, 29.3 cents; in Europe, 42 cents; in Asia, 44.3 cents and in Africa, 46.5 cents.

River Tonnages Beat Canals

PITTSBURGH, Oct. 16.—More bulk tonnage was transported on Pittsburgh's three rivers in September than on the Suez and Panama canals combined in an average month. "So keen is the demand for waterway transportation facilities that the only factor preventing even greater tonnage is the utter lack of sufficient tows and barges," one responsible official observed. This disclosure was made in army engineers monthly tonnage records.



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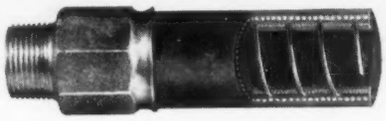
INTERESTING TRADE ITEMS

Non-Metallic Gasoline Hose

A non-metallic gasoline pump hose (Type 74) has been announced by The B. F. Goodrich Co., Akron, Ohio. The tube of this hose contains no rubber, being made of a compound having a Duprene base of synthetic rubberlike material more oil resistant than natural rubber.

The carcass consists of an outer braid of single end yarn and two inner plies of woven fabric. Between the braid



and wrapped fabric is a thick secondary tube of rubber in which is embedded a spiral reinforcement of high tensile steel wire. The cover, made of carbon black compound, is said to offer both oil and abrasion resisting properties.

The hose is available in ¾ and 1-inch sizes equipped with Permalock type coupling of new design, permanently attached to the hose, but may be supplied in uncoupled lengths or with Wilbro couplings.

* * *

General Purpose Turbine

For driving general purpose machinery in industrial plants including pumps, a new and improved line of Type "C" turbines is announced by Westinghouse Electric and Mfg. Co., East Pittsburgh. The turbines are of the impulse type having one pressure and two velocity stages. They are built in capacities ranging approximately from 5 to 500 horsepower, at speeds of 1000 to 5000 r.p.m. Suitable for use with steam pressures up to 650 pounds gauge and for total temperatures up to 750 F., they may be operated either condensing or non-condensing with rotation in either direction.

* * *

Selling Its Own Salesmen

Walker Mfg. Co., Racine, Wis., manufacturer of lifts and other service station equipment, is backing up its advertising in the automotive and oil industry business journals, by bringing to its salesmen and jobbers regularly the extent of its advertising in these publications. The nature of the copy being carried is shown and the extent of the circulation of the various publications, by groups, is given, 797,881 dealer calls for Walker jobbers being made in one month alone, one booklet points out. It also brings out that, in seven months, through the advertising pages of these publications, 4,412,000 dealer calls for the company's prospects have been made. NATIONAL PETROLEUM NEWS is one of the publications mentioned in the booklet.

* * *

Engine Re-manufacture Service

Under a new service plan adopted by Reo Motor Car Co., Reo will re-manufacture used engines on an exchange basis, replacing old engine parts with new parts where needed. The re-made engine will carry the same guarantee as a new engine. This new service, accomplished on a production basis, will be available at production prices, it is said.

* * *

Reconditioned Spark Plugs

Champion Spark Plug Co., Toledo, scored in its fight to clean up trade practices by a recent decision handed down by Federal Judge E. J. Moinet enjoining the sale of reconditioned spark plugs unless all identifying marks are removed, the appearance changed, the shell and bushing painted red and marked "used," it is reported by the company.

* * *

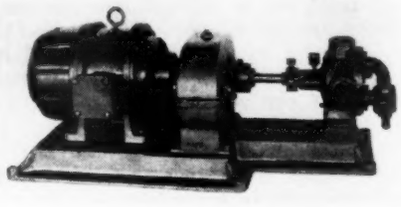
Elects New President

Announcement has been made by the American Can Co., New York, of the election of Dr. H. A. Baker as president of the company. He succeeds C. E. Green, resigned. Mr. Baker has been with the company since graduation from the University of Toronto in 1906.

* * *

New Pump Design

A new back-geared unit on L-shaped base is being offered by the Viking Pump Co., Cedar Falls, Iowa, in its new figure 108 unit. The unit features



compactness in view of its extreme gear reduction to as low as 100 r.p.m. from a standard 1750 r.p.m. motor.

The unit is available from the 20 gallons per minute at 450 r.p.m. to 90 gallons per minute at 390 r.p.m.